

New Series.



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EDITOR

THE ATHENEUM.

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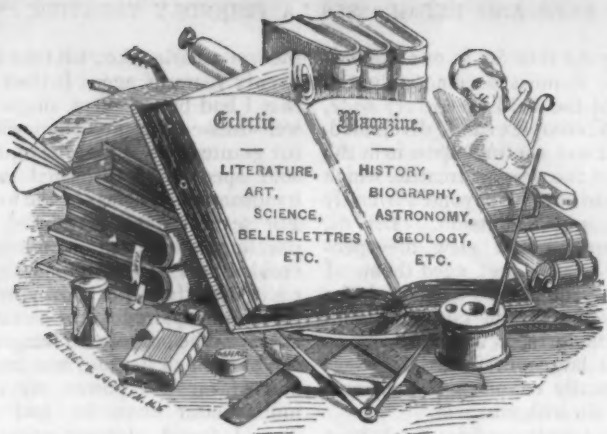
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Eclectic Magazine

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plete in 63 vols.

EYES AND EYE-GLASSES. A FRIENDLY TREATISE.

BY RICHARD HENGIST HORNE.

WHATEVER we may think of the apparently preternatural gift of 'second sight' attributed to special individuals in bygone ages, the real second sight of modern man is a good pair of spectacles. They are at once the rejuvenescence of the eye, the preservative of that most important organ, the means of making darkness visible, or turning murky night into clear-faced day; and when the eyes are young in years, but defective in power, the optical magic of spectacles so accommodates discrepancies that their lenses bring the world of vision into a proper focus, and put eccentric nature to-rights.

I shall use the term 'eye-glass' in the widest sense. Let us begin by an act of duty—not in the least a painful one—namely, that of scornfully expelling from our consideration the single glass, stuck by means of a grim grimace under

one eyelid, for mere fashion's sake, in the Lord Dundreary style, and far rather let us think of the admirable surgical glass, whereby we are now enabled to look into the interior chambers of life; thence we may turn to the wonder-showing compound lenses of the microscope, and to the sublime telescope—a divine revelation to man, by whomsoever invented; and thence we may advert to the glasses of the dioptric and other beacons, whose seaward lights save so many thousands of lives from shipwreck every year.*

* The *Times* of October 11th contained an article entitled 'The Eyes of Artillery,' which induces me to revert to a letter of mine that appeared in the Melbourne *Argus* of June 24th, 1859. It was to the effect that only a few gifted sights in a whole regiment would be able to hit an object so small as a man at a distance of 2,000 yards; and that the improvements in rifles, as well as artillery, would require a corresponding eye-glass, or *longue-vue*

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But having gone thus far in our preliminary survey, it must become only too apparent that the field is so very wide, and so very complex and diversified, that we must not venture upon it in the brief space of the present treatise, which can pretend to nothing beyond a friendly examination and discussion. Let us, therefore, confine our view to—spectacles, and the eyes that need them. I shall treat of the glasses of the scholar and author—him of the midnight lamp—the artist, the artisan, and the work-a-day world at large; in fine, the glasses of all who really cannot see well, and often not at all, without them.

And first we must consider the human eye under those conditions that require assistance to the vision. With respect to nearsightedness, my own case will, no doubt, be the case of countless numbers. I was slightly nearsighted when a boy, and I did not know it. Objects on the opposite side of a street, which other boys appeared to see clearly, I could only see mistily. It was the same at a theatre, at a picture gallery, and so forth; yet the thought that my eyes were defective, and that I ought to get glasses of some kind, never occurred to me. The main reason of this neglect was that my close sight was particularly keen, and it enabled me to become one of the best hands at the penwork style of military drawing in use at the R. M. C., Sandhurst, at that period, and subsequently to obtain a medal from the Society of Arts for the copy of an etching by Rembrandt. But what time did I waste at Sandhurst (under professorial directions) on the borders of islands surrounded by fine gradations of lines, to represent sea, here and there interrupted by the intricate difficulties of rocks jutting up, not to speak of patches of level sand, to be represented by shady gradations of thousands of minute dots! The cadets who were found to have a bad nearsight were speedily drafted off to an inferior (but how much more sensible) 'hall of study,' where the military drawing plans were executed in brush work, far more truthfully, being in colors, and in a fourth part of the time. So no thought of assisting my eyes, with regard to objects at a little distance, ever occurred, and I continued to strain my eyes at scenes on the stage, girls' faces over the way,

picture galleries, &c., till four or five and twenty years of age. It then struck me that I had better get a single glass. A well-dressed man in a shop, whom I took for granted was an optician, because he sold spectacles, furnished me with a handsome single glass of the wrong focus. For several days I endured a strange dazzling, alternating with mist, and the crookedness of outlines which became right directly I put down my glass. I therefore repaired to the same optician's shop, and he politely exchanged the glass for one which he said was more simple and of far less power, my eyes being much better than he had supposed. This I found pleasant enough, but of very little use, as, on close examination, it seemed to me to be only a thin sort of window-glass, and no lens at all. My sight being really very good, and only requiring aid at a few yards' distance, I continued without any proper glass for another twenty years; in fact, without troubling myself on the matter beyond the occasional use of a *lorgnette* at the opera, or on a racecourse, and the 'captain's glass' at sea. And thus years rolled on, at home and in foreign countries, without the idea occurring that I ought to get suitable glasses chosen for me by a scientific optician, or by some experienced friend who understood the thing practically. And this reprehensible neglect is no doubt the case with many who continue to strain their eyes over small type till they have done irreparable injury to their sight. But I fancy, though perhaps vainly flattering myself, that I have come to my senses in time, *viz.*, on finding at length that the second or smaller type of a newspaper or closely-printed page could only be deciphered with an effort. It was then, having got pretty well accommodated by a decent optician—though not a first-rate one—that the truth flashed upon me that proper eye-glasses give you a second sight as good, *pro tem.*, as your first, and, in many cases, much better.

Among the very large class of those who are near-sighted, the great majority will be found in the upper and middle classes; and, of course, chiefly among learned men, professional men, authors, artists, students, &c. But, with the exception of those artisans and mechanics whose peculiar work demands a constant,

and therefore injurious, strain (particularly when it is night-work) upon the eyes, it will be found that near-sightedness to any considerable degree is extremely rare among operatives; while among the great mass of outdoor laborers, and the whole of the agricultural class, such a thing is scarcely known. With regard to the children of the upper and middle classes, near-sightedness, when they are not born so, is probably in a great measure attributable to a premature straining of the optic nerves by minute and intricate toys, difficult puzzles, too early lessons in reading and writing; also to sleeping in over-heated and unventilated bedrooms, or bedroom windows throwing a glaring light upon the face, and to the want of sufficient out-of-door exercise, and atmospheric influences.

Now, admitting that one has taken to spectacles late in life, be it understood that this does not prove they have been adopted *too* late. No injury may have supervened by the delay. In my own case probably there was no injury, because I could read a fair-sized type as well as twenty years ago, and do not need them now for the ordinary avocations of life; and they would be only a trouble to me out-of-doors. The nice point of the question, then, is to determine at what time spectacles should be adopted for reading and other indoor occupations? It is not how young or how old you may be, but what is the condition of your eyesight. This being determined, the next thing is to discover what kind of glasses you need. On no account of persuasion or cheapness should you allow yourself to be induced to purchase glasses that are too weak, and require some straining of the eyes to make useful; or too strong, and causing a perverse glitter, or a dimness and thickening enlargement of letters and other objects. When you have got the right thing, keep to it as long as it is right; and when you find it has become wrong, change it for the better—a maxim worthy of Solomon.

After the foregoing statements, remarks, and exhortations it will hardly be necessary for me to intimate, even to strangers, that I am not an optician or an oculist in any professional sense, and that I do not deal in spectacles. Neither have I any relations or friends in that way, and I am not at all anxious to

become the agent of any wholesale manufacturer of eye-glasses in England, America, or elsewhere. If any such were to engage me at a handsome figure, I am sure it would be greatly to his injury, and he would soon know why. This paper, be it remembered, is called a 'friendly' treatise, and shall be honestly devoted to that principle and purpose.

But, as a general student and observer of nature, I have from an early age been a speculator on the wonders of eyesight—the eyesight of men, birds, beasts, and insects.* I omit the fish in this place, not so much on account of his comparatively dull and circumscribed capacity and local habitation, as because he lives within a liquid magnifying medium, and we do not—or at any rate I do not—know what are his powers of visual accommodation to his delusive circumstances. Here, for the present, we will pause in our consideration of eyes (but intending to revert to them on every needful occasion as we proceed), and take up the too-little studied question of eye-glasses.

Let me now confess that it is but recently that I have practically and earnestly turned my attention to 'spectacles,' and to the unspeakable importance of properly suiting a defective or peculiar vision. How many people have, like myself, continued for years—not a few all their lives—in the same state of thoughtlessness, need not be said. And what awoke me suddenly to the consideration was not 'my own good sense,' but the practical and professional good sense of a nameless stranger. Chancing one muggy day in Marylebone to be straining my optic nerves (without glasses) over various pages of more or less injurious small types at an old book-stall in High Street, I lighted upon a battered, ragged, and otherwise unsaleable book, labelled *4d.*, the title of which caused me at once to open it. Bearing a veteran publisher's name, it had been given to a partially appreciating public upwards of half a century ago, and bore the following very comprehensive, old-fashioned title-page: 'THE ART OF

* In attestation of this, I hope I may be pardoned for referring to my book, entitled *The Poor Artist, or Seven Eyesights and One Object* (London, 2nd edit., Van Voorst, 1871). It may be designated as 'Science in Fable.'

PRESERVING the SIGHT unimpaired to an extreme Old Age; and of re-establishing and strengthening it when it becomes weak; with Instructions how to proceed in Accidental cases, which do not require the assistance of professional men, and the mode of Treatment proper for the Eyes during and immediately after Small Pox: to which are added Observations on the Inconveniences and Dangers arising from the use of COMMON SPECTACLES, &c. &c., by an Experienced Oculist. London: Printed for Henry Colburn, 1816.' This book I have described as having been only 'partially appreciated,' but the copy now before me being announced as the 'third edition,' a good many people must have discovered its value, although it has been allowed to sink amidst the yearly currents of new publications. That we have had special discoveries, inventions, new methods of medical and surgical treatment (particularly in the case of squinting), new instruments, and a general advance in the knowledge and skill of oculists since the appearance of this book, I considered to be pretty certain; but for sound work-a-day sense, numerous cautions, minute details, great care (over-care, indeed, sometimes in what may look like trifles), very varied and numerous instructions, superseding the necessity of calling in professional advice, being evidently the result of long optical experience, this is one of the best books of the kind that has ever been published in England or elsewhere, so far as I can ascertain;—while, with reference to eye-glass opticians, it not only shows us past dangers, but startles us as we look around at the present day and behold the heaps and piles of spectacles lying pell-mell in windows, and in many shops dangling like dried sprats on strings, in company with shining knives and corkscrews, button-hooks and nut-crackers, with the announcement that 'any of these articles may be had for a shilling or eighteenpence,' and—'spectacles to suit all sights.'

Our friend—the friend of young and old—the 'Experienced Oculist,' begins with a short discourse on the 'mind's eye' and the 'pleasures of memory,' being desirous of showing the great importance of the eye over the ear, forgetting that we can remember melodies as

well as pictures; but, with due respect, we shall pass over all this, and come at once to his first practical observations and advice. He commences with domestic arrangements, and more especially with regard to children and young persons, but hardly less applicable to persons of advanced ages. Beware of dark bed-rooms; also of dark bed-curtains and dark window-blinds. Abandon the common practice of suddenly drawing back curtains and raising blinds on first getting out of bed, when your face will be smitten by a sudden glare of light. How often have we all experienced this, and how well we must remember the momentary blinding effect. Avoid, if possible, having your bedroom window facing the east. If it does, and you may perhaps prefer it should, then be all the more careful on fine summer mornings, and do not be impatient with the apparent over-cautiousness of the 'Experienced Oculist;' for acts of imprudence which seem to do no harm may do very great injury if continued for years. Bedroom curtains, also, should not be of very red, or any other bright colors, but of a sober hue. Our friend then relates the case of a young person who slept in a chamber during the heat of summer with the window opposite to a newly whitewashed wall, the window curtains being of white calico, and his face receiving the full glare of the morning light as he lay in bed. The consequence was that he almost always 'awoke amidst a flow of tears.' This soon caused a painful contraction of the eyes, and then an inflammation of the eyelids. The first prescription for this was an immediate change of the chamber; but the cure was slow, and a weakness of the eyes continued for a considerable time. How little are these dangers considered by individuals, by private families, and even in large public institutions. During the period I was at Sandhurst College the cadets were constantly punished for acts, or words, or looks of insubordination, and indeed for all sorts of trifling offences, by being ordered into confinement in the black hole, politely called—the cadets being the sons of officers and gentlemen, noblemen, or young noblemen themselves—the 'dark room.' These military dungeons were (and probably still are) small cells beneath

the college, containing a small wooden bed (I mean, the bed was of planks), with a low wooden shelf for the head, in place of a pillow. It had a small square window, kept open for air when no culprit was within, but closed and locked before he was brought there. The four panes of glass were painted black, and over these was placed a wooden inside shutter about an inch and a half thick, which was also locked. This cell was so densely dark when you first were ushered in by the sergeant on duty, and the iron-plated door was closed and bolted behind you, that it was literally impossible to see your own hand when stretched out before you. The insubordinate, or otherwise offending young gentleman, had to grope his way about like one totally blind, his first purpose being (after he had had a little previous experience of the thing) to find his wooden bed, and lie down till his eyes could by slow degrees accommodate themselves. But very little could be effected in that way till the next morning. The eyes then discovered that some score of small gimlet-holes had been made in the thick wooden shutter, and by means of these a dismal series of spots of murky light forced their way through the black-painted glass window behind, and were visible upon the opposite wall. By means of these, the prisoner could see his way about next day very well; and more than this—such is the power of the optic nerves when forced by emergencies—he was actually able, by the afternoon of the second day, to wile away the dolefully wasting hours by reading such pamphlet or stray leaves of print as he had managed to secrete under false soles in his boots, a false top to his cap, or stitched between the lining of his waistcoat, in anticipation of the searchings that always took place in the guard-room previous to his being marched to the shades below. But the 'reading' was only effected by the very slow process of a word at a time, the page being systematically moved by both hands close beneath the most promising of the gimlet-hole reflections. Now, before I utter a complaint, let me admire and commend something. Is it not an admirable thing that young gentlemen and noblemen, who will some day be officers in command, should know by their own

personal experience that it is no slight punishment to order a soldier to the 'black hole,' were it only for eight-and-forty hours? The wooden bed and pillow, the bread and water diet, and even the aching cold in a winter's frost, are not so trying as the crawling hours of darkness and the vault-like solitude. And now about the eyes. Twelve hours and twenty-four hours were felt much more than may be imagined, with respect to the effect of the sudden light of day, on coming out of the cell; but when the period of darkness had continued for sixty or eighty hours and more, and there chanced to be a strong sunlight at the moment of issuing forth, the effect was absolutely blinding. The blindness might have continued, and there can be no doubt but a risk of various injuries is incurred by the want of caution in this matter.

Having said thus much about the eyes of young persons, it will be as well to deal with this part of our subject more completely by commencing from the earliest period. It appears that we all, as babies, have, more or less, a tendency to squinting. The eyes of babies often seem to swim about like the Platonic unborn souls in search of bodies, and with a vague searching that often has a very pathetic effect. It is obvious that great care should be taken of us with respect to the action of the light that is admitted to us in the cradle. Dr. Priestley, Buffon, and Dr. Jurin, were among the first writers who devoted great attention to this matter. Buffon considers that early squinting arises merely from 'an inequality in the goodness of the eyes;' that if the eye that squints be turned towards the temples, he generally found that there was no great inequality in the strength and goodness of the two, and that the cure might often be effected by covering the other eye for a fortnight; but if one eye turns steadily towards the nose, it is a bad case. According to Dr. Priestley, the squinting of young children is frequently caused by the child being habitually laid in its cradle in such a position that one eye shall be quite shrouded, or turned away from the influence of the light. The eyes at this period being weak, the one from which the light is thus excluded, will make instinctive efforts, or, as Priestley expresses-

it, 'will obey the influences which descend from the brain,' and turn 'upwards and inwards' in most cases. It is generally considered that the best means of curing this tendency is to cover up the other eye, not necessarily for the length of time proposed by Buffon, but during a few hours every day, only increasing the time in obstinate cases. Our friend the 'Experienced Oculist' has one excellent passage on this subject, full of old-fashioned care, experience, and kindly warnings:

I could produce numberless instances of parents and nurses who, in the *very earliest days of infancy*, have laid the foundation of an incurable weakness of sight in the little ones under their care. In doing this, however, they err through ignorance, not knowing or considering that the eyes are not yet accustomed to the action of light, and that it is only by little and little that we can bear the effects of its salutary influence.

But how shall I impress it upon the minds of parents and of females in general, who, unfortunately, are not in the habit of reflecting deeply upon causes and effects [*ahem*!], that every new ray of light occasions upon the eyes of these innocents [martyrs] a new irritation, and that every unaccustomed and continued irritation must have a violent effect upon their delicate organs.

If papa, or grandmamma, wish to see the new-born, it is immediately carried to the window, or into the lightest place, when the poor infant instantly begins to cry without measure; but then it cannot tell what it is that hurts, and every *unnecessary* means of pacifying are attempted, whilst the true cause of the uneasiness is never thought of.

If the relatives of the good lady mamma should be numerous, or her visitants frequent, then the poor infant is exposed (to the shining window) perhaps twenty times a day, until the curious examiners have determined which of its parents it resembles most; and its little cries continue all the while until a redness and swelling of the eyelids takes place, a yellowish serosity flowing from the eyes, and covering them continually. Then the nurses are astonished!—and exclaim with wonder how it happens that a child born of such healthy parents should be so soon tormented with acrimonious humors, whilst the acrimony itself must be carried off by the nostrums of the midwife, an operation which closes with the necessity of calling in a physician, who too often finds an incurable weakness of sight.

These dangers are increased by the circumstance of the apartment of the mother being generally kept almost in darkness, 'particularly after a difficult case,' the infant being taken in a day or two into perhaps one of the lightest

chambers of the house, and where the window-blinds are of the thinnest material. Again, as to the causes of squinting or of an obliquity of vision, or of a *glide* in the eye, it not unfrequently occurs that a candle, or some shining object, such as a mirror, or some highly polished object of plate, brass, or cut-glass, is placed at one side of the cradle, and by this an infant's eyes are certain to be attracted directly it awakes; and the bright mischief will be stared at for some time, if the child be permitted—nay, its attention is sometimes expressly directed to it, with the usual disastrous energies of baby-talk and 'livening-up.' Should this be repeated several times in the course of the day, 'the muscle of the eye, called the *erector*, of course undergoes a painful degree of motion; and if the shining object be at one side of the cradle, then the oblique muscles contract so forcibly, and in a manner so durable, that a habit of squinting naturally follows,' and will become fixed if the same causes be continued. The thoughtless habit of holding a bright object close to a child's nose, by way of a pleasing play, or to teach it to 'begin to notice,' is also likely to induce a similar injury. The sting of an insect badly treated, and causing a red tumor for several days upon the nose, has been known to induce a temporary squint. Our friend the 'Experienced Oculist' amuses us by the grave account he gives of one of his remedies for infant vision when injured by the above circumstances. He tried the experiment of placing *winkers* at each side of the temples, after the style of horse-winkers, in order to shut out side-vision, and compel both eyes to look only straight forwards; but he found that babies were often far more knowing than he had imagined, and that 'as soon as they were unobserved' they just pulled off the *winkers*. Sometimes he found they had pulled them towards the nose in order to continue looking at objects in the injurious manner they had been allowed to commence. We thus arrive at the conclusion that, although various remedies for the mischief may be judiciously adopted, it is by far the best policy to take every care that no such injuries should be allowed to originate.

Parents and guardians will have to

judge at what period a child's eyes are strong enough to be exercised, but it seems clear that as early as this can be safely commenced a child's eyes should be gently and gradually induced to look at *distant* objects. The contrary method is almost invariably adopted, and very minute things are constantly placed before the child's vision, so that the imperfection and injury of near-sightedness is most commonly induced. We understand that it has been ascertained by actual experiment that the eye possesses more voluntary power with respect to distant objects than the mere contraction or expansion of the pupil. Dr. Priestley observed that 'the contraction of the pupil certainly tends to lessen all indistinctness of vision, whether the object be too remote or too near; and that the pupil is certainly not contracted but dilated for the purpose of viewing objects that are very remote, as without a dilatation of the pupil in such instances a sufficient quantity of rays could not be admitted.' Moreover, it has been shown by Dr. Porterfield, in a series of observations, that the human eyes possess a power of changing their conformation, and of adapting themselves to various distances. We certainly do not seem to possess this power in the same way that is observable in the eyes of a cat, but if we watch the eyes of an experienced sailor when far out at sea, we may often notice the variety of movements that take place in his eyes besides the dilatation and the occasional contraction, though the latter seems commonly done for a moment only, in order to assist the energies of the eye in a renewed process of dilatation.

During the early years of education the eyes of young people are tried too severely. They are kept too many hours in the course of each day at work that taxes the close attention of the eyes, such as the small types in which some grammars and all dictionaries are printed, small figures of arithmetic, extremely small types of maps; while with respect to girls they are often kept for hours at a stretch staring at musical notes, or close down upon the nonsense of fancy needlework, to be followed perhaps by drawing and painting the minute traceries and varied tints of flowers and leaves; after which, if the girls are at a boarding-

school, they walk out not unlike 'a funeral procession,' followed by the teachers, and vigilantly watched lest they should use their eyes by looking about them. Boys and young men are more commonly near-sighted than girls and young women, because the reading and other studies are more severe, and prolonged through more years; still, there is a far larger number of near-sighted girls and young women than is generally supposed, because the use of spectacles, and even single eye-glasses, is not considered graceful and becoming, and they certainly add something to the apparent age of the wearers. I once knew a young lady in Canada, very handsome and well educated, who was so near-sighted that she often could not find her partner in the movements of a quadrille, and sometimes she even got astray from her own party into the adjoining set. But she could not be persuaded to dance in spectacles. I also knew a very handsome young German gentleman in Dresden, who was so comparatively blind by near-sightedness that he could not read without the use of a kind of glass cylinder of about an inch in thickness; and he never knew a friend in the street unless he heard his voice, or went up to him so closely that their noses almost touched. But he would not wear spectacles. This was a very remarkable thing in Germany, where the great majority of students, as well as professors and professional men, seem to wear spectacles as a necessary appurtenance and insignia of intellectual labors.

The late Charles Dickens had very peculiar eyes. They took in all objects, within more than a semicircle, at a single glance; but I never saw him use glasses except on one occasion. He was then living in London, and I at Finchley. Having stayed with him later than usual one night, he knew that I had lost all the public conveyances, and I was to be driven home in his American buggy. But there was a fog, and he would not trust groom or coachman, and drove me home himself, having first mounted a special pair of spectacles. Admirably he drove through the thick mist, at a good pace, and we chatting all the way, some five miles. What sort of glasses he could have found to effect any clearing in a London fog, quite puzzles me to

conceive. I so much regret now that it never occurred to me to ask him.

Many kindly cautions and pieces of advice are given by our friend, previously quoted, which will be useful to various classes. Some of these are scarcely practicable, on account of their inconvenience; others are sure not to be adopted because of the inveteracy of our habits. That is not to the purpose. Here they are: take them, or leave them. We all know very well that sitting for hours, and bending over a desk, or a flat table (which is far worse) is injurious to health, and that it would be very good to vary the position by doing the same work, when practicable, at an upright desk in a standing position. But our long-confirmed habits are against this; moreover, the change would, almost to a certainty, break the train of thought, distract the attention, and lead the energies astray. Ten to one, but such a change would cause the individual to 'take a turn round the houses,' and amuse himself for an hour or more. This advice also, unfortunately, would be quite impracticable for many artists and artisans. The painters could of course adopt it, and they do so; but the engravers could not, I believe, and I am sure the watchmakers, lace-makers, and some others could not. The violin student usually stands up at his practice, but the student of the violoncello and the pianoforte must be seated. And so with many arts and handicrafts. But the injurious habit of working with a frame of white paper placed before a sunny window, or with a glass globe of water at night, might certainly be abandoned without any great effort.

All these paper frames, as well as screens and lamp shades, ought to be of a pale green or light blue. In working at or near a sunny window, the pale green paper frame should be placed obliquely, and the reader or worker should sit at a table or desk "so that the light shall fall obliquely over the left shoulder." If you sit with the light coming over the right shoulder, then the shades and movements of the right hand will rather disturb the equability of the surface and the vision. But our friend recommends candles at night, in preference to a lamp, considering that a generally-diffused equality of light is

better for the eyes than a concentrated reflected light. He scouts tallow, of course, and assures us that we must never burn anything but wax. Two wax candles—that is the proper arrangement for a literary gentleman at night. Our friend does not insist upon green wax, though green wax would be best for the purpose. This reminds us, at first, of the physicians who strongly recommend the exercise of horse-riding to patients, regardless of circumstances; but, on consideration, and, let me add, after experiments, I find that our professional adviser is perfectly right in all respects, for a good wax candle will burn a very much longer time and with less waste than tallow, or even the epicene composite, and therefore is not really much more expensive, besides the inestimable blessing of not distracting the attention by thieves and gutterings, or the base need of snuffing; not to speak of the plebeian nasal offensiveness of a slowly-expiring mutton snuff. It is worth noting, also, that those persons who happen to have thin eyebrows, or thin eyelids, and very small pale eyelashes, would do well to wear a broad green shade attached to the forehead by means of an elastic band, in addition to the previous arrangements, if their avocations require them to use their eyes during half the night. Never hold a book or other writing behind the candle—that is, with the glittering flame right in your face while you strain your eyes in looking through the illumination; and do not in the daytime, or evening, sit reading with your back to the window, 'because the rays of light are too directly reflected; and the injury will be greater in proportion as the paper shall be more white, or the print finer.' Mark this, all youthful readers of the cheap editions of sensational novels, printed in double columns, of the smallest type very much the worse for wear, badly printed and with faded ink, upon bad paper of uneven surface. Stupid economy! and no real economy, but the reverse in its ocular results. Be it remembered that it is good to vary the occupation of reading by writing at intervals, and that writing, especially at night, is less trying to the eyes than reading. One reason of this is, I think, that you can write the letters of words anyhow so that they are

legible (and you will often see legible handwriting in which scarcely a single word has the letters really made, or possible to be deciphered if cut out from the context), but in the act of reading the eye habitually looks at the letters of the words, however rapidly and unconsciously. It is also much better to write a large than a fine small hand; but when there has been a long habit of writing very small it will be found extremely difficult to make a change. I do not consider any of the foregoing advices and cautions as trivial, because so many persons pass the greater part of their lives in reading or writing.

Our friend alludes to the very trying work of engravers; and we must not forget what we owe to those who gradually, yet certainly, destroy their sight over copper and steel as well as gems. The watchmakers, likewise, receive attention; and all those whose avocations unfortunately compel them to work on highly-polished surfaces, by lamp or candle-light, receive due cautions. He has operated on many cataracts which were clearly attributable to that cause. Blacksmiths, whitesmiths, farriers, and cooks come in for their share of professional advice, and one of his chapters thus concludes:—'To workers in silk, also, I would recommend that the same person' (silk weavers' eyes being too much affected by the shining colors of the silk) 'should not be employed to hang the silks out in the open air, nor even in tender grounds, as the continual reflection of so many different colors may be highly prejudicial. To bleachers of linens and cottons, and to all persons engaged in those manufactures, similar cautions may be given; nay, even practical chemists and philosophers need not disdain to avail themselves of hints on things which might otherwise be unthought of in their ardent pursuit of knowledge.' What a kind, what an excellently benevolent man is our friend the 'Experienced Oculist!' How wide are his sympathies, how careful and discriminating are his advices and his cautions! How admirably practical a little book he has produced as the condensed result of many years of extensive practice and much thought! And here am I, a mere amateur and an empiric, gaining credit, and profit too, by exhuming and reviving his long-forgotten re-

mains, and all this without being able to give the name of so genuine a philanthropist! But I do not despair of discovering it some day, and making it known, as I think it deserves.

Now it may be thought by some persons that, as these exhumed remains are some sixty years of age in the vaults of Time, where mists and mouldy films hang obscuring festoons over those who 'lie in cold obstruction,' while the vigorous working world has rumbled on its busy purblind course, and all sorts of new oculists and opticians, with all manner of new discoveries, experiences, operations (as in the cure of squinting), instruments and appliances, lotions and treatments, have probably sprung into light; it may, I say, be reasonably imagined that very much of our friend's professional experiences and deductions have been superseded. So I determined to consult the best books on eyes and eye-glasses that have been published during the last fifty years, and the best living oculists and opticians. But besides the fact of the progress of knowledge, a certain statement by our friend, of a surgical nature, startled me. It was this, that 'while the *slightest wounds*, even the most insignificant accidents, if accompanied by *contusion*, are always extremely dangerous, it is a curious and important fact that *the human eye will bear the deepest incisions*, done with *cutting instruments*, without any serious detriment to the sight.' If the reader be as new to the subject as I was, he will understand my feeling on first meeting with such a statement, and I at once made up my mind to consult some other 'experienced oculist' who had the advantage of being alive. After this I would examine the best books of the day on our present subject, which is unquestionably so important to the whole civilized world, and to the uncivilized also; but you cannot help everybody.

Full of these things, I forthwith paid a visit to one of the first oculists of the day—Mr. William White Cooper, a 'fellow' of infinite titles, particularly with regard to ophthalmic societies and institutions.

'Give me leave, Mr. Cooper, to ask if you could cut my eye right across, with safety to my eye?'

'Yes, certainly, if you had a cataract.'

'But should I be able to see with that eye, after it?'

'In all probability. I have performed the operation a hundred times.'

'And should I see as well as before?'

'Yes, if it were not an unusually bad case. But we do a great many things for the human eye besides cutting it across.'

I returned home immediately, seeing my way much clearer in these matters; and, of course, with renewed respect for my old-fashioned friend from the book-stall. The first work of the present day which I examined was Mr. White Cooper's treatise *On Wounds and Injuries of the Eye*. The number and variety of the cases was most interesting; and we shall there find that, while 'the delicacy and complexity' of the structure of the human eye render every injury important, 'there is no organ in which the reparative powers of nature are more remarkable.' And again, 'that wounds of the eye are far less painful than might be imagined.' When a particle of grit, or lime-dust, or sharp flying seed-husk, gets between the surface of the eye and the eyelid, and causes such irritation, inflammation, and aching pain, we very naturally think that an 'operation' of the simplest kind must be so intensely painful; but this is imaginary. Here are two or three very curious cases. A musket-ball struck a soldier of the 88th Regiment, entering behind the outer side of one eye, passing behind the bones of the nose, and making its exit just beneath the ear on the other side. Yet neither of his eyes appeared to have been organically injured. The sight, however, was lost in both, by reason of the concussion injuring the optic nerves. 'The wound gave little trouble,' says Mr. Cooper, 'and the soldier was invalided to England, well, about a month after its receipt.' Sir Charles Bell relates a case of a soldier (in his *System of Operative Surgery*, vol. ii. p. 452) who received a bullet in the globe of the eye, where it stuck fast (a spent ball, of course) by 'the elastic tissues arresting its progress.' And there it remained, 'not from any surgical difficulty,' but because the soldier had an eye to business. It was something to be looked at ever after. The soldier with a leaden eye said it was 'too

valuable to be extracted.' During the retreat from Corunna a soldier of the 36th Regiment, who was cooking his comrades' dinners while they were away skirmishing with the enemy, was struck by something under the left eye. 'Dr. Barton extracted from the socket a musket-ball, flattened so much as to resemble a piece of money from its having first struck against a wall in front of the man. The eye did not suffer in the least,' although the soldier had a very anxious march the same night, with the enemy at their heels. Dr. Macleod (in his *Surgery of the Crimean War*, p. 223), relates a case in proof of how little injury and inconvenience may be caused by the immediate vicinity of a bullet to the eye:—'A soldier was struck at the battle of the Alma by a round ball, which entered close to, and immediately below, the inner canthus of the eye. The wound healed, and the patient had almost forgotten the circumstance, when, after suffering slightly from dryness in one nostril some months afterwards, the ball fell from his nose, to his great alarm and astonishment.' At the siege of Calvi, when Lord Nelson was in command, a shot struck a battery close by, and Nelson was hit in the face by some of the stones and fragments. Though the injury destroyed the sight of one eye, it did not confine him from duty longer than a single day. In most instances, however, we should bear in mind that the eyes are protected by the instinctively rapid movements of the eyelids. Mr. Cooper once wrote to a prize-fighter to inquire if there were many cases of blindness caused from blows on the eyes? He received the following reply from 'Jem Ward,' formerly a celebrated 'champion of England':

King's Arms, Whitechapel Road,
London, Dec. 16/58.

Dear Sir,—I rec'd your letter, and have in reply to say that in the course of my experience I do not recollect blindness to follow in consequence of blows rec'd in a prize fight. There is, I believe, one or two instances of men having negested (*sic*) their eyes, caught cold, and lost their sight. I have seen men's eyes completely shut up from blows, and yet their sight was not at all injured.

I am, dr. Sir, yr. obdt. Servt.,
W. Cooper, Esq. JAMES WARD.

Mr. Cooper accounts for the preservation of the eyes under these violent blows

by the magnitude of the fist causing the blow to be received upon the protecting frontal and cheek bones, and also by the instinctive closing of the eyelids. No doubt he is right. Moreover, it is remarkable how soon a very badly contused black-and-purple eye is relieved by being bound up with relays of raw steak. But, to my thinking, the most wonderful of all human dealings with the eye is that of giving to the eye a new pupil, so to speak, or of removing a wounded pupil from one place to another, which amounts to conveying vision to a new locality! A little girl was laying her cheek caressingly upon a wolf-dog, supposed to be domesticated, when the ferocious beast suddenly seized her by the face, which he was only prevented from tearing to pieces by her long hair getting into his throat. It was found that one of his teeth had penetrated the eyeball. Mr. J. E. Mathews and Mr. White Cooper attended the little girl. The pupil of the eye had been dragged towards the margin of the corner, and the displacement entirely prevented sight. In a few weeks the child was chloroformed, and Mr. Cooper then 'made an incision through the cornea below the mesial line, and with Tyrrell's blunt hook drew down the margin of the pupil and fixed it in the wound. No inflammation followed. The pupil being well below the margin of the lid, perfectly good vision was restored.' The disfigurement of the little girl's eye was much less than might have been expected.

Dr. David Smith (in his *Lectures on Preservation of Sight*) tells us that 'in Glasgow and its neighborhood alone, in connection with various crafts, probably not less than one thousand injuries of the eye are received in one year.' Out of these he considers that one half are due, as usual, to the carelessness of the men. That flying morsels of metal or stone continually endanger the sight nobody can doubt; but when Dr. David Smith tells us that 'in almost all cases in which a foreign body penetrates the eyeball immediate and irreparable loss of the injured eye follows,' the experience of most of the great living oculists goes very far towards controverting the assertion. I will only quote two more of these wonderful operations. The fol-

lowing extraordinary cure is recorded in the *Ophthalmic Review*, page 337: 'C. W., a hale, vigorous old man, turned seventy-three years of age, fell down-stairs in the dark, being very drunk at the time.' On recovering himself he found that he had a bad wound in the right eye, on the side near the nose. He neglected the swelling during ten days or more, and then went to Mr. Alfred Clarke, of Gloucester, who discovered the extremity of some iron substance in the wound. After tugging hard many times, Mr. Clarke at last pulled out 'the entire shaft of a cast-iron hat peg, measuring three inches and three-tenths in length.' The old man, it was discovered, had fallen head foremost upon a row of hat pegs screwed to the wall in his tumble down-stairs, and this one had broken off 'after it had become completely buried in his orbit.' The nature of the wound 'of the globe' and its cure are described, and in result 'the patient recovered without a single unfavorable symptom.' The only inconvenience to the old man was that he occasionally shed a few involuntary tears, at which one cannot feel much surprised. If the reader has a taste for these operations he will find more of them in *A Handy-Book of Ophthalmic Surgery*, by J. Z. Laurence and R. C. Moon (1866). But the most wonderful operation was performed by Mr. Dixon (see Dixon's *Guide to Diseases of the Eye*, page 382). In October 1847 a Cornish miner was severely wounded by an explosion of gunpowder at a copper mine in Cuba. He came under the care of Mr. Dixon in the May following. His forehead and cheeks were seamed with scars, and small fragments of stone might be felt here and there beneath the skin of the face, which was dotted with grains of exploded gunpowder. The left eyeball and eyelids had been totally destroyed; but on the right side, where the eyelids should have been, there was a strange appearance. Both lids were confounded together in one uniform cicatrix so firm and rigid that the aperture, or odd-shaped window, diminished to a third of the natural size of an eye, never underwent the slightest change of form. 'It looked like a hole cut in a mask.' The margin of this opening was smooth and rounded, and fringed with a few strag-

gling eyelashes.' From this hideous and anything but promising 'hole in a mask' Mr. Dixon decided upon an endeavor at making an eye with an artificial pupil. Having enlarged the whole by a surgical operation to nearly twice its former dimensions, a considerable portion of the eyeball came into view. He next extirpated the lachrymal gland, 'as the tears, instead of being serviceable, would only be an embarrassment.' The irritation subsided in a few days, and 'Mr. Dixon then made an artificial pupil by drawing out and removing a small piece of iris; this not being sufficient, the pupil was enlarged by a subsequent operation, and the ultimate result was that when the patient left town he could guide himself so as to be able (as Mr. Dixon subsequently learned) to gain his living by driving a coal-cart down to the coast, a distance of ten miles, unattended by any companion.' This operation has been justly characterised by Mr. Cooper and other great oculists as a triumph of skill, and I think they might have added, of genius in ophthalmic surgery. After such things as these we need never again feel astonished at hearing of oculists taking out a man's eye, laying it upon his cheek for examination, washing, rectifying, and repairing it, and then putting it back in its place very much improved in its subsequent vision. Not that we believe this *au pied de la lettre*. It has been reported that Sir Astley Cooper once made the cool and ghastly remark that 'many a man destroys a hatful of eyes before he becomes an expert operator as a surgeon-oculist.' If this dreadful opinion had foundation at that period, one feels happy in the conviction that no such abominable apprenticeship is at present needed, as witnessed by the extraordinary operations now not uncommon.

The foregoing have been extracted from a multitude of most interesting cases in the works quoted; and very many more can be found in the writings of other eminent oculists of the day, such as Mr. Bowman, Dr. Meyr (*Beiträge zur Augenheilkunde*, &c.), Mr. Critchett, Dr. Borelli, Dr. David Smith, and several well known French, German, and Italian surgeons, and provincial practitioners in England, who have made

special study of the human eye. But we must now hurry on through a list of notes and memoranda of one kind and another, and then come to an examination, both generally and particularly, of the widely-interesting subject of spectacles and other eye-glasses.

The first note on my list of interpolations will be admitted as of paramount importance. While imperfections of eyesight are in almost all cases confined to the individual as to results and consequences, there is one exception of a most important and fatal kind. I allude to what is termed *achromatopsy*, or Daltonism, being the *inability to distinguish colors*. 'Prevost arrived at the conclusion' (as quoted by White Cooper) 'that the relative frequency of achromatopsy to perfect vision is as one to twenty; and Seebeck states that five out of forty youths who composed the two upper classes in a gymnasium at Berlin were affected with it.' In addition to this, Mr. Cooper tells us that '*males* are nearly as ten to one more frequently affected than females.' Other examples are given. While so many lives, besides property, are literally dependent upon the eyesight of railway officers and servants, it is obvious that they should pass a preliminary examination as to colors as well as distant objects. I most earnestly entreat the public press of all civilised countries to insist upon this.

With a reassured mind and feeling—though I always placed reliance upon our first friend, the 'Experienced Oculist'—we will now proceed to consider a variety of cautions, advices, and also directions as to the treatment of certain accidents and injuries that so frequently happen to the eyes. Some of the former have already been scattered over our course, but here are a few more. That which applies to children is applicable, though in a less serious degree, to grown-up people. The more you avoid glaring and glancing lights in the rooms you habitually sit in, the better. Therefore—although the following advice is certain to meet with no attention from the great majority—it is our laughably painful duty to recommend ladies to have as few mirrors and other looking-glasses, gilt picture-frames, and mouldings, bright colored curtains, and highly-polished furniture, in their draw-

ing-rooms as possible; and what they must have should be so placed as not to allow bright lights to be thrown upon them. Highly-colored curtains are additionally injurious when the windows are open, so that various brilliant and dazzling colors are flung about the room by the incoming breeze. A very bright carpet is a very injurious thing, and when combined with a brightly-painted ceiling, madness. These things may be a merry life for the eyes, but they are a short one. A rich-patterned sober-toned carpet, and a soft sky-grey or stone-colored ceiling, are my own private fancy. The almost invariable whitewash of the British ceiling would be a constant injury but for the grave fact that the British Isles are not overburdened with sunlight. But whether reading, writing, or working in any other way, it should always be done with an oblique light, and never with a horizontal light. As to the use of *lotions*, several prescriptions are given in the little book we commenced with, as well as in other works, but I forbear to transcribe any of them, excellent as they no doubt would be, because a lotion too strong, or too frequently applied, or not exactly the proper lotion for a special case or individual peculiarity, might do far more harm than good, unless used under professional supervision. The only exception is that of pure water. In cases of much inflammation, or difficulty of opening the eyelids in the morning, the water should be warm, and it may be mixed with warm milk; but in nearly all other cases it should be cold. All those who have been engaged in reading or writing during several hours at a stretch, and especially at night, should carefully bathe the eyes with cold water before going to bed, and the first thing in the morning's ablutions. 'All artisans who work at a blazing fire ought often to wash their eyes with cold pure water; and so should all those who work in wool, particularly carders and spinners, and all those employed in woollen and cotton manufactures, &c.; for the fine dust, almost imperceptible it may be called, which such works disperse, often produces cataracts, obstinate inflammations, swelled eyelids, &c.' I once lived, during weeks at a time, on the banks of an ophthalmic river in the interior of

Australia; and numbers of settlers and shepherds, bushmen and diggers, were afflicted every summer and autumn with sore eyes—so sore in some cases that you might have thought they would never open them again. One day a squatter who owned a sheep-station thereabouts rode up from Melbourne with a great air. He was a 'swell squatter,' who only now and then came to visit his snug little farm on the river, 'to see how stock got on.' I asked his advice for the sore eyes of his shepherds and others. 'It serves them quite right!' said he. 'I never have these sore eyes; and you, sir, will never have sore eyes. No gentleman ever has.' Not exactly perceiving the nice distinction in this matter, I demurred. 'It is a nice distinction,' said he; 'it is just *that*. You no doubt often wash your eyes with cold water. Those fellows never do.' There was no doubt much reason in this; but something else was the cause. Besides the dirtiness of neglecting the hot sand and dust in the eyes, flies often rushed into them, and were not soon or easily cleared out; there was, moreover, a very small river fly who either bit or stung, and inflammation very speedily set in. I should have been very thankful at that time, for the sake of others (my horses included) as well as myself, to have received the following advice:—whenever a fly, or other insect, a small flying-seed, quicklime, dust, or any other minute object, gets into the eye (i.e. under the eyelid) 'do not adopt the common habit of rubbing, or even of washing with water, but gently raise, or get a gentle hand to raise for you, the eyelid, and bend the head forward. In keeping thus the eyelid elevated, and the eye quiescent for a few moments, one feels a flow of tears starting from the organ which seldom fails to bring along with it the cause of the pain, or at least to carry it towards the corner of the eye next to the nose, from whence it may be removed by a fine handkerchief folded to a point. If this operation is not sufficient, then a finger ought to be passed frequently, yet gently, over the eyelid, from the exterior corner of the eye towards the great canthus (or interior corner), by which means the substance is made to descend towards the lachrymal glands, from whence it may be drawn

by a fine hair pencil.' If the irritating substance still remains, then we are further instructed that 'the upper eyelid must be taken as before, and kept elevated as much as possible, and the eye being then turned towards the nose, a very fine camel's hair pencil, dipped in cream, oil, or perfectly fresh butter' (without an atom of salt in it, remember) 'must be introduced between the eyelid and the body of the eye, beginning at the exterior corner, and ending at the interior corner.' If the very fine hair pencil is not successful, you will be almost certain to succeed with one rather larger. Should all these efforts fail, which is extremely unlikely if they are properly performed, do not set to work rubbing or washing the eye, as you must obtain professional assistance. Be sure to bathe the eye frequently in cold water as soon as, and for some time after, the irritating substance has been extracted.

And now for all sorts of eye-glasses.

'I cannot eat my dinner!' exclaimed a literary gentleman of my acquaintance (R. S. T. M——), addressing his wife. 'I have mislaid my spectacles!' The friend he had invited expressed his surprise, as there was no fish. 'It is not the fear of fish-bones,' said the troubled man, 'but the inability to taste anything. I cannot taste without my spectacles. One thing on table is just the same to me as another, without my glasses. All soups are alike, all meats, *entrées*, vegetables, and wines. Besides, I have no appetite! You may laugh.' We did laugh, and not the less when we witnessed the beaming change of countenance as his wife found them, hidden as usual in 'a conspicuous place,' and presented them to him. He assured us, with smiles, that it was *not* all nonsense. He had worn spectacles since he was nine years old, and was not himself when they were mislaid. He had lived all his life in spectacles, and did not believe he could die happily without them.' Even after this he was about to say something, but we all declared we could not stand any more. Nevertheless, however humorously this gentleman discoursed of his 'glassy essence,' there is much truth at bottom, since the habit of years will confirm almost any usage into a second nature. The only ques-

tion in so early a case as his must be, is whether spectacles were really necessary in his childhood. And this brings us to the first consideration as to the reality of the need. The kind and degree of the need is an after consideration. If you take to eye-glasses of any sort when you do not actually require them (though you may have some complaint in the eyes which troubles your vision), you will cause a positive injury by the habitual use of them. A method of discovering whether spectacles will be a benefit to you is thus given us in the lectures 'On Preservation of Sight,' by Dr. David Smith, of Glasgow. Take a thick card, and pierce a little round hole in it, of about the size of an ordinary pin's head. Hold this up towards an object, first to one eye and then to the other, covering the eye not employed. 'If the dimness of sight which exists arises from such a defect of the humor of the eye that normal refraction can be re-established by the use of spectacles of any kind whatever, vision through the aperture ought to be rendered clearer.' (By this process you will also discover if there is a difference in the power of the two eyes, which we will discuss farther on.) 'On the other hand, if the dimness of sight arises from opacity of the humors—such as exist in cataract, or from diseases of the retina or optic nerve, then vision will generally be rendered dimmer.' The writer suggests that this method should be adopted before spectacles are selected, for although it gives us 'no indication of the *kind* of spectacles which should be used, it will almost invariably mark out the cases in which spectacles should *not* be used.'

And now I find myself in a difficulty in advising a friend in his search after proper eye-glasses. An eminent living oculist placed the lectures of Dr. David Smith in my hand, with the remark that they comprised all that was known upon the subject of eye-glasses up to the present day. If these lectures were intended for students in optics as relating to eye-glasses, they no doubt deserve all the praise that can be given to them; but they are far too technical for the general public. Let us therefore go back to our first friend, the 'Experienced Oculist,' making use of some portions of the advice in Dr. David Smith's lectures, so

far as we can render them malleable to a simplified style, together with frequent reference to Mr. White Cooper's work *On Sight*, which I find to be altogether the best professional book on the subject. In addition to these I shall incorporate such information as I have obtained from visits to the principal eyeglass opticians, both at the east and west end of London.

Now, my first advice to those personally interested in obtaining eye-glasses of the kind they ought to wear, is to go to a professional oculist; and as they probably would only need to go once on this business for years, and perhaps during the rest of their lives, it is far better to expend a guinea or two in this way than to purchase a new coat or waistcoat, fancy ring, or false hair. If, however, circumstances do not admit of this, then go to a really qualified optician; and if you will sensibly have the framework of your spectacles or other eye-glasses set modestly in blue steel (which is much better than the injurious dazzle of gold, silver, or any shining substance) the expense will be far more prudently incurred than if you went to a pretending optician, who will sell you glasses very cheap at the moment, but for which you will pay dearly in a few years by the injury done to your sight. In the meantime, before you go to either oculist or optician, please to pay attention to this 'friendly treatise,' so that you may be the better able to understand and state your own case, and to judge of the remedial glasses proposed to you for trial.

Some people take to spectacles long before they are necessary, but a far greater number delay too long—particularly ladies. All fair allowances may be made for the latter, the more so if they are unmarried; there can, however, be no excuse for men, although they often delay wearing spectacles for similar reasons, adopting injurious lenses in a single eyeglass, through which they stare and glare, to the damage of the other eye, if not of both. But 'in general it happens people do not know precisely the time when spectacles become necessary. Many persons imagine there is a certain period of the human life when eyeglasses are required, which has given rise to that pernicious plan of many self-

styled opticians to prepare spectacles *for every age*, which they of course dispose of to the ignorant and inexperienced. As soon as a man of fifty years of age, for example, has, through any circumstance, forced his sight for a few days, he begins to imagine he must have spectacles. These he obtains, asking for and trying to obtain the best for his particular age; and after a short time he probably arrives at the conclusion that he can see better without them.' The fact is that some men of seventy or even eighty years of age enjoy their eyesight as well as at any period of their lives, while their children, and perhaps grandchildren, cannot do without eye-glasses. The time when this beneficent and blessed invention of the great Roger Bacon—of the so-called 'dark ages'—is needed, depends not only on the special conformation of the organ, but on the care that has been taken of it—the proper use, or the abuse—the neglect of nice attentions in washing, &c., or the misfortune of compulsory work during too many hours, over very minute or shining objects, and with injurious lights. The simplest rules for ascertaining the need of eye-glasses are, firstly, to note if you are obliged to remove small print or small objects farther than usual from your eyes, in order to see them distinctly; secondly, if you find yourself involuntarily moving nearer to the light than was usual with you, in order to read a letter or book; thirdly, if very small objects appear confused after you have looked at them for any length of time; fourthly, if the eyes, after a little close attention to anything, become so fatigued that you are obliged to turn aside to give them relaxation; and, lastly, if the sight, on first awaking, is very weak, and does not recover its customary degree of force until some time after.

As for the choice of eye-glasses, here are a few general rules to begin with. 'In the first place, good glasses ought never to magnify the objects very much, but merely to show them to us *clear*, simple, and exactly such as they are. Even in the exceptional cases where rather strong magnifiers are needed, the proof when they are too strong will be when you are obliged to bring the object much closer to the eye than a sound sight requires'—in brief, 'every person

ought, generally speaking, to be able to read conveniently with his spectacles at the same distance that he was accustomed to whilst his visual powers were perfect.'

All eye-glasses should be formed of pure glass. There should be no specks, rays, globules, or other imperfections. 'There is a common prejudice,' says Mr. White Cooper, 'in favor of *pebbles*, and they certainly possess two advantageous qualities—extreme hardness, rendering it difficult to scratch or break them, and clearness, never becoming dull from moisture.' Surely these are important advantages; and they are also considered to be cooler than other glass. The only thing against them is that they cost so very much more than all other glasses. But good and true eye-glasses 'should be in all their parts of an equal thickness, in proportion to their convexity, as well as of an equal form. Another test of true eye-glasses is by holding them obliquely over print, all the letters of which will preserve their true character if the glasses are correct.'

It must never be forgotten that the *frame* in which eye-glasses are set must be exactly suited to the wearer, because the breadth or narrowness of the upper part of the nose—in fact, the space between the two eyes—differs so much with different people, that the centres of the glasses and the centres of the eyes are sure not to agree unless perfectly adjusted. For this reason, if there were no other reasons, it is best to have spectacles made expressly for you by a qualified optician. With the vendors of cheap spectacles 'to suit all sights,' this is never considered, because the wholesale manufacturer makes them to a common standard to suit all noses, and not the nose of any 'particular fellow.' Frames that maintain their position by pinching the nose should never be used. It affects the eyes.

The final rule of our first friend in this business is, that 'the glass which agrees with one eye ought never to be applied to the other.' It is important to mark this, for it hence follows that our 'Experienced Oculist' assumes that none of us have our two eyes exactly alike. No doubt this must be true, on the broad principle that there are no two things in nature exactly alike; but few of us are

prepared to be told that we have odd eyes, to any appreciable degree. It is, however, most certainly the case with innumerable individuals, who do not discover it till late in life, and who, perhaps, in the majority of cases, never discover it. One eye works so satisfactorily that we naturally give the other full credit for its equal share. I am myself an instance of this innocent ignorance, as I never made the discovery until I commenced writing this friendly treatise; and a pair of spectacles, with glasses to suit two different eyes (one unusually good—as I know—and the other a commonplace thing, having a murky shade at the inner corner), are at this time being made for me by a London optician, who has worked exclusively at this nice and peculiar business of eye-glasses during the last forty years. The result shall be made known after I have worn the spectacles some time; but judging from the trials made with different glasses for my eyes before the proper two glasses were decided upon, I am disposed to fancy that this benefactor of his species may give me a right eye almost equal to my left, as he tells me he has done for many before me. *Eh, bien, je verrai—et, nous verrons.*

In the great variety of details comprised in the book of our first friend, I have only discovered one error, and this is a curious one to have been made by an evidently 'old-fashioned' writer. He alludes to, and of course denounces, the impudent foppery of a 'quizzing-glass,' which he considers simply as a single glass of magnifying or other mischievous qualities; whereas the real old 'quizzing-glass' of the days of Beau Nash and the Bath-chair fops was not like any other eye-glass of the period, and there have been none of the kind since. How few living men have ever seen a 'quizzing-glass' even in an old curiosity shop. I am a rare exception, having seen one in the possession of the late Samuel Drummond, A.R.A. (the painter of the first, and the best, 'Death of Nelson'), who kept it as a curious relic of Hogarth's period. It was a little looking-glass, of just the size and appearance of an ordinary single eye-glass. You would never suppose that the person who was scrutinising your face was the one whose back was turned to you,

and who was carefully examining some object in front of him. And so he *was*. The insidious little mirror had, however, its compensating disadvantages; for inasmuch as 'listeners seldom hear any good of themselves,' so did those who possessed a little talisman for seeing what passed behind their backs, often see gesticulations and other things that were neither complimentary or delightful.

But there is a statement referring to one-eyed people of a far more important kind, which, if not a demonstrable error, I still take leave very respectfully to doubt. Our friend tells us that people who have lost one eye have always 'seen more distinctly, and in a more acute manner, than they did before with both eyes.' After a time this will be the result, and also after having taken proper care in the gradual exercise of the remaining precious organ. His remarks on the care that should be bestowed upon the remaining eye, after one has been lost, are given with his usual good sense. Also we are warned that persons with weak eyes 'should *not* shun the light,' but soften its too great force by a screen or shade of a pale blue or green tint; that the eyes should be very frequently bathed with cold water—but with warm water when there is a difficulty of opening the eyelids after sleep. In journeys through the snow on a very bright day, or over hot sandy plains, it is prudent to wear a dark veil. This I have often found of very valuable service in long summer rides in Mexico and Australia, more particularly during the 'hot wind' (or sirocco) which was so frequent in the latter region before roads were made, and the cultivation of lands caused a positive change in the climate since 1852. At that period not only squatters and commercial travellers often wore veils during long journeys, but bullock-drivers might be seen on their way to the gold-fields with long violet-colored silk veils to protect their eyes from the burning dust, and the stinging torment of irrepressible and exasperating flies. Very recently I had occasion to write to my erudite and accomplished friend, Professor Owen (at that time in Egypt), and I asked him 'how he was off' as to fleas? He replied that they were by no means in such legions as I had dreaded

to encounter on my proposed visit; in fact, not worth notice, but that the flies were a torment. On his return I enquired what glasses he had used as a protection from that plague? The reply of the Professor was happily characteristic. 'I did not need any. A delicate little grey bird called "The Fly-catcher" (with various Latin titles) used to come to pay me a visit whenever my windows were open.'

After all the cautions and preachments of mine as to prudence and care, I think it right to record one of my worst—indeed, my very worst—act of folly, chiefly in order to show what the most carefully disposed natures may do under a little excitement or vanity, before they come to their senses. Standing one red-hot day in the front of the verandah of the late Attorney-General of Victoria, the sun being nearly vertical, I casually remarked that I was able to look directly upwards at the sun without winking or shedding a tear, and that I had never chanced to fall in with anyone else who could do so. Whereupon the learned gentleman replied, that he had always had a very powerful kind of vision, and he believed he could do the same. And so—like two mature fools—we stood side by side, both staring right up at the blazing sun of an Australian summer's day. On relating this, very recently, to an eminent London oculist, he took his breath, and exclaimed, 'Madness! you might both have lost your sight for ever.' But we were not at all injured; and this I attribute, not so much to our eyes (of the blue-grey sort, which oculists consider to be stronger and more enduring than the more beautiful black or other very dark eyes) as to a certain hawk-like outline of the upper eyelid, which my learned friend and his challenger both possess. All the eagle and falcon family of birds have the same peculiarity, down to the smallest hawk, with the exception of the owl, who is nevertheless a blinking relation, but more than a hawk by night, for then his eyes glow and glare with a devilish fire. Horses, dogs, and most wild beasts have a power of vision in darkness greater perhaps than we know. Of course the cat possesses this; but then a cat is a tame tiger in miniature, or else of the witch family. A word more of this brief digression. I

once had a blood mare—an old Sydney-bred racer—who was a capital leaper, and seemed to bound into the air with a kind of nervous ecstasy. The cause of this nervousness soon became apparent. As she always leaped far too wide or too high, I became convinced that her eyes misled her judgment. She used to clear a fallen forest-log as if it had been two fallen trunks, one lying upon the other. I have heard of a most ingenious American invention, in the form of spectacles for horses, whereby a defective sight may be corrected. Surely such spectacles would often be invaluable for hunting, steeple-chases, and stock-riding; but I fear they can hardly be brought into general use, as they would probably frighten other horses out of their wits, especially on meeting each other by moonlight, or in a narrow, dark lane near a lamp; and this brings me to allude to eye-glasses all over the civilised world, not forgetting 'China and Peru.'

It will be evident that this friendly treatise cannot find space for extracts or opinions from the writers in all countries, though something of all these is necessarily incorporated in our text, inasmuch as all the later works are, in degree, as they should be, indebted to the best which appeared before them. Mainly these pages, except in matters of personal experience, are founded upon the works of the most eminent English oculists and opticians; but they also acknowledge considerable obligations to French, German, and other authors. One of the best works on our present subject is by an American optician of Cincinnati.* Judging from the number of carefully-drawn diagrams and other illustrations, we may suppose the writer to be both an oculist and an optician. Like Dr. David Smith, he is often too scientifically technical for popular reading. The application of some of his best advice, prescriptions, and rules, may now and then require a professional adviser at your side. If you are in want of spectacles you must not venture alone into his complex field of 'positive and negative sphero-cylindrical and bi-cylindrical lenses, to correct compound

astigmatism.' In itself the book is excellent; and I would say that it moreover displays no small degree of moral courage in a country where the people certainly *do* smoke occasionally, when we read that 'the use of tobacco in any form, but more especially in smoking, affects the eye seriously. Tobacco gradually, little by little, undermines the sensitiveness of this delicate organ, irritating its conjunctival lining membrane, and paralysing its nervous power, *besides exerting a similar influence upon the brain and nervous system of the body.*' Hear that, ye hard-working men of letters! The late Lord Lytton told me that 'he continually sat up the greater part of the night, not to speak of the day, writing and smoking at the same time; and that was how he got through so much work.' The reduced state of his nervous system and general health during the last twenty years was, no doubt, in a great measure attributable to this inveterate habit, which had injured not only his sight, but probably (through the Eustachian tube) his hearing.

A work of ingenious historical research, as well as of some labor, concerning spectacles, was written by a celebrated Dutch optician;† and, if the reader has a bias in favor of French science in these matters, let him get Dr. Sichel's *Leçons Cliniques sur les Lunettes*. But the best English works on the subject, both of the Eye and its second-sight, viz., glasses, I venture to declare to be—and without in the least detracting from the great excellence of some others—those by our first friend, the unknown 'Experienced Oculist' (1816), by Mr. White Cooper (1853), by Mr. Walter Alden (1866), and, lastly, by Dr. David Smith (1871), although I must be permitted to think, while not ungrateful for his numerous geometrical problems, demonstrations, and mathematical illustrations, that his book might have been called 'Bonnycastle on Optics and Lenses.'

Taking all the works last mentioned and some others collectively, up to the present day, we find the following list of eye-glasses:—There are the ordinary shapes of spectacles—rounds, ovals, ob-

* See, in the British Museum Library, Alden (Walter), *The Human Eye*, Cincinnati, 1866, 8vo., press mark 7610 a.a.a.

† *Aanteekening van Verschillige Merkwaa-
digheden over de Brillen, en verderen Zien-
glazen, &c.*, door Fr. Eng. de Caesemaeker, Gant.

longs—and of different sizes, up to the grotesquely-large circles worn by the Chinese. There are the half-eye spectacles, the upper half being cut off; but these have been superseded by the pantoscopic, or far-sighted glasses, the frames of which are so arranged that the lenses are thrown obliquely under or before the eye. There are the K-shaped, or French spectacles, with no comfortable bridge for the nose-bridge, which some people prefer and all the rest detest. There are the double-focus or split spectacles, the lenses in the upper halves being of a weak focus for distant objects, and the lower halves of a stronger focus for reading, &c., invented by Benjamin Franklin. I once knew an old Royal Academician who, being a great theorist in eye-glasses, sometimes wore, while painting a portrait, three pairs of spectacles, one above the other, at the same time. One pair of glassed eyes were to bring you nearer, the other two pairs were for clearing or magnifying his work. The effect of these three sets of glassed eyes upon the sitter—having the strong gleam of an Argand lamp upon his face—as they continually rose and fell, with the intent old artist-eye alternately flashing behind one or other of them, was anything but conducive to a placid ‘expression.’ Of the spectacles fitted with glasses of different powers to suit those whose eyes are not equally good or bad, no illustrations are given, because the question is too various, intricate, and not yet reduced to any system. When the spectacles of this kind now being made for me come to hand, I shall be able to say something about them which I hope will be useful. Of what may be termed the protective glasses, there are several—such as goggles, which are made like little cups of different forms, with gauze or very fine wire to keep off flies, dust, &c., glare of light, and cold draughts of wind. For this purpose there are also four-glass spectacles, having semi-opaque or colored glass sides; as also the *coquilles*, or shell-spectacles, covering the eye as with a neutral-tinted cup. These latter I should have considered likely to be much too heating, but Mr. Alden says they have perfect ventilation. For my own part, I recommend simply a strip of brown crape. Of those spectacles which are for special

purposes, such as Donders’ stenopaic spectacles; and those which Mr. Cooper devised for the Polar and other expeditions likely to cause snow-blindness; of decentred convex lenses, and orthoscopic spectacles, &c., this is not the place to speak, our business being to deal only with broad generalities;—under which head let me recommend the happy possessor of eye-glasses that exactly suit him, never to leave them ‘lying about,’ not only because they are certain to get ‘under cover,’ or be otherwise mislaid, but because they are liable to be scratched, if not broken. When done with always replace them in the case.

The reader who has gone through the present familiar treatise may now consider himself sufficiently “facted up” for an interview with an oculist—if necessary—and having ascertained the healthy condition of his eyes, or what sort of imperfection, weakness, and so forth, he may labor under, and whether eye-glasses of any kind will be suitable to his need, he will then pay a visit to an optician.

The great oculist and the great optician are usually very different kinds of men. The eminent oculist is a gentleman of medical education, and general knowledge. His voice, his manners, his refined ease, show that he is accustomed to the best society, and that many ladies are his patients. His preparation to touch the organ of vision is most gentle, encouraging, and permeated with an elegant yet learned recognition of the importance of your case. He inspires you with every confidence in his knowledge and skill. He is fully aware that the human eye, though an organ ripe with delicate wonders, is by no means so over-sensitive to examination and skilful manipulations as is commonly imagined; but he also knows that every patient who comes to him has that apprehension. He therefore ‘treads on silk,’ as he approaches, and scarcely stirs the air with his hands when he raises them, waveringly, towards your eyes, for a butterfly’s touch. You need not flinch, or blink, and wink—as when ordinary hands approach—and prepare to cry ‘oh!’ or utter any ejaculation or pleading. I really believe that several of our eminent London oculists could take one of your eyes out and put it back again

with far less pain than the most expert dentist could draw a strong-rooted side or back tooth. Of course, you cannot pleasantly imagine this. Howbeit, you may feel thoroughly satisfied that you are perfectly safe in the hands of any highly-qualified oculist, and need have no fear of his fairy fingers.

Now, your great London optician is probably quite another sort of being. I do not allude to any carefully-dressed gentleman in a fashionable optician's shop in one of the West-end streets, but to some celebrated adept—some man in years—who lives anywhere, dresses anyhow, and makes no show in his dusky windows. A wooden sextant-box, a tarnished brass instrument of some kind, and a little common tray with four or five old spectacles in it, are quite show enough for him. He is rather hard in manners, voice, and general indifference. Not rude, and yet not at all polite. You perceive that he is ready, at a word, to be cynical, dogmatic, if not autocratic. 'Do you come with an oculist's opinion for him to carry out? or with your own opinion, to teach *him*? or do you come to submit yourself implicitly to his long experience and skill? If either of the former, say so; if the latter, he will then know what he is about, and will do the best for you.' Being overcome by this preamble, you accept this last, and are prepared to submit. He intimates that he cares nothing for your custom, as he is already a hundred deep in orders for eye-glasses of one kind and another. Again, you declare your intention is that of a blind, or rather a perfectly docile submission. He assumes at once that you have been the dupe, like most other people, of cheap spectacle shops, or of vagrant Hebrews, with their tawdry little boxes of 'all sights' and 'all ages,' and that your eyes have suffered as they deserved; and so, at last, you come to him—as others in the same predicament have done before you. He does not say 'no thanks to you,' but you are clearly to infer this from his manner. 'Well,' he says, as to some naughty boy—'well, what have you been doing? Show me your glasses.' He manipulates each lens between a thumb and forefinger, and utters a half-suppressed ejaculation of contempt. He then examines each glass by means of a

formidable wooden tube some two yards long, one end touching the floor, down the upper part of which he looks at the spectacles, and other glasses you reluctantly hand to the inquisitor. You tremble at what you may have been doing. He returns them to you, successively, with mutterings of pity, scorn, and reprehension. Such is the interest he takes in his optical profession, and in your particular case. The Royal Arms are over his door; but that's no great matter. Your eyes are now put through a course of lenses, confronted with print of various sizes of type and with objects at various distances in his shop and across the street. Then follow a number of scrutinising questions, the purport of which you are forbidden to inquire, and finally you are measured for the spectacle frame. The width of the nose-bridge, that is to say, the distance between the eyes, must be ascertained to a hair's breadth and less, so that the focus of each lens shall be exactly in the centre of each eye. The adept now fits you on a succession of frames, and at last says, 'Look at me!' You rather dread to encounter such orbs as you expect the great optician will dart into your soul; nevertheless, as you have sometimes looked up at the sun, you gather courage, and look straight into his eyes. But in fact the constant work of superintending the grinding and polishing of lenses, and the close examinations of these during many years, have destroyed all his own visual lustre. The eyes of the adept are like two stale gooseberries, or like those of a dead cat, and you wonder whether he sees the exact measure across your nose. But he does. You may now go, he tells you. He will let you know when to come for your spectacles. No bowing, or 'seeing' to the door—no smirking remark about the weather—no 'good morning, sir,'—nothing of that sort. You may now go about your business. Three weeks elapse, and the grinding, polishing, and fitting into a steel frame having been completed, you receive a summons through the optician's amanuensis. You present yourself. The adept comes slowly from an inner laboratory to meet you. No 'good day'—nothing of that sort. 'Try on these,' he says, after rubbing the lenses with a

piece of fine, though not very new, washleather. The plainest steel frames; no showy vanities. You examine several sorts of type. You wish to take out your old, previously-used spectacles, but dare not, lest you should offend, and appear comparatively ungrateful for all the care bestowed on you. What you really think you do not venture to express or hint at. You sit mute; and you pay a price for which you could obtain ten pairs of spectacles almost identical with that one pair! You try in vain to see better with them than with your previous glasses.

Do I intend you to infer that the adept is a quack, or a pedantic pretender, a man with an erroneous estimate of his own skill and importance in civilised society? By no means. He will do the very best that can probably be done for you. All I really do mean is, that you may obtain the same suitable glasses for about one-tenth of his price, 'provided always' that you go the right way about it. Thus—avoiding all learned nomenclatures, science, and technicalities—avoiding also the problems of the squint, the odd or unequal eyes, and the misrepresenting vision whether of colors or forms—I now address myself simply to the great mass of my fellow-creatures who are more or less troubled by a near-sight, aged or far-sight, and imperfect sight, from causes remediable by special eye-glasses. And I say emphatically, in the first place, eschew all hawkers and cheap-johns, as well as all charlatan cheap shops, from whose stores you may damage your eyes for life at the small charge of one shilling; but, also, do not be dazzled and deluded by great names, or royal arms, or by fine, scientific-

looking instruments and lenses displayed behind the plate-glass windows of elegant opticians. So that a man is really an educated practical optician, you need not concern yourself about his celebrity or his place of abode. And with that understanding, it is 100 to 1 but you may suit yourself, or he will suit you (unless your case be peculiar as to one or both eyes) with a pair of steel-framed spectacles for two shillings as well as if you paid sixteen shillings or a guinea.

Since the last page of this familiar treatise has been written, it has come to my knowledge that there are good grounds for believing that our first friend the 'Experienced Oculist' was a man celebrated in his day for various good deeds in the medical profession, and other directions; but lest I should give credit to the wrong person, I must not at present say to whom the book is attributed. As a final reference, however, let me state that he concludes by putting forth the philanthropic suggestion that, inasmuch as we have public charitable institutions for ophthalmia, for skin diseases, for the distribution of trusses at cost price, &c., &c., there should also be an institution where poor people could obtain suitable spectacles at cost price, or less. Cordially seconding the proposal, and recommending it to others, I now lay down my pen, place my spectacles in their case, and close this conversational treatise with a friendly farewell to those eyes of Europe and America which have been upon me, and to those eyes of the denizens of all countries to whom the acquirement of a 'second-sight' is precious.—*Fraser's Magazine*.

THE ASCENT OF MAN.

BY GOLDWIN SMITH.

SCIENCE and criticism have raised the veil of the Mosaic cosmogony and revealed to us the physical origin of man. We see that instead of being created out of the dust of the earth by Divine fiat, he has in all probability been evolved out of it by a process of development through a series of intermediate forms.

The discovery is, of course, unspeakably

momentous. Among other things it seems to open to us a new view of morality, and one which, if it is verified by further investigation, can hardly fail to produce a great change in philosophy. Supposing that man has ascended from a lower animal form, there appears to be ground at least for surmising that vice, instead of being a diabolical inspir-

ation or a mysterious element of human nature, is the remnant of the lower animal not yet eliminated; while virtue is the effort, individual and collective, by which that remnant is being gradually worked off. The acknowledged connection of virtue with the ascendancy of the social over the selfish desires and tendencies seems to correspond with this view; the nature of the lower animals being, so far as we can see, almost entirely selfish, and admitting no regard even for the present interests of their kind, much less for its interests in the future. The doubtful qualities, and "last infirmities of noble minds," such as ambition and the love of fame, in which the selfish element is mingled with one not wholly selfish, and which commend themselves at least by their refinement, as contrasted with the coarseness of the merely animal vices, may perhaps be regarded as belonging to the class of phenomena quaintly designated by some writers as "pointer facts," and as marking the process of transition. In what morality consists, no one has yet succeeded in making clear. Mr. Sidgwick's recent criticism of the various theories leads to the conviction that not one of them affords a satisfactory basis for a practical system of ethics. If our lower nature can be traced to an animal origin, and can be shown to be in course of elimination, however slow and interrupted, this at all events will be a solid fact, and one which must be the starting-point of any future system of ethics. Light would be at once thrown by such a discovery on some parts of the subject which have hitherto been involved in impenetrable darkness. Of the vice of cruelty, for example, no rational account, we believe, has yet been given; it is connected with no human appetite, and seems to gratify no human object of desire; but if we can be shown to have inherited it from animal progenitors, the mystery of its existence is at least in part explained. In the event of this surmise being substantiated, moral phantasms, with their mediæval trappings, would for ever disappear; individual responsibility would be reduced within reasonable limits; the difficulty of the question respecting free will would shrink to comparatively narrow proportions; but it does not seem likely that

the love of virtue and the hatred of vice would be diminished; on the contrary, it seems likely that they would be practically intensified, while a more practical direction would certainly be given to the science of ethics as a system of moral training and a method of curing moral disease.

It is needless to say how great has been the influence of the doctrine of evolution, or rather perhaps of the method of investigation to which it has given birth, upon the study of history, especially the history of institutions. Our general histories will apparently have to be almost rewritten from that point of view. It is only to be noted, with regard to the treatment of history, that the mere introduction of a physical nomenclature, however elaborate and apparently scientific, does not make anything physical which before was not so, or exclude from human actions, of which history is the aggregate, any element not of a physical kind. We are impressed, perhaps, at first with a sense of new knowledge when we are told that human history is "an integration of matter and concomitant dissipation of motion; during which the matter passes from an indefinite incoherent homogeneity to a definite coherent heterogeneity, and during which the retained motion undergoes a parallel transformation." But a little reflection suggests to us that such a philosophy is vitiated by the assumption involved in the word "matter," and that the philosophy of history is in fact left exactly where it was before. The superior complexity of high civilization is a familiar social fact which gains nothing in clearness by the importation of mechanical or physiological terms.

We must also be permitted to bear in mind that evolution, though it may explain everything else, cannot explain itself. What is the origin of the movement, and by what power the order of development is prescribed, are questions yet unsolved by physical science. That the solution, if it could be supplied, would involve anything arbitrary, miraculous, or at variance with the observed order of things, need not be assumed; but it might open a new view of the universe, and dissipate for ever the merely mechanical accounts of it. In the mean time we may fairly enter a caveat against

the tacit insinuation of an unproved solution. Science can apparently give no reason for assuming that the first cause, and that which gives the law to development, is a blind force rather than an archetypal idea. The only origination within our experience is that of human action, where the cause is an idea. Science herself, in fact, constantly assumes an analogous cause for the movements of the universe in her use of the word law, which necessarily conveys the notion, not merely of observed co-existence and sequence, but of the intelligent and consistent action of a higher power, on which we rely, in reasoning from the past to the future, as we do upon consistency in the settled conduct of a man.

Unspeakably momentous, however, we once more admit, the discovery is, and great is the debt of gratitude due to its illustrious authors. Yet it seems not unreasonable to ask whether in some respects we are not too much under its immediate influence, and whether the revolution of thought, though destined ultimately to be vast, may not at present have somewhat overpassed its bounds. Is it not possible that the physical origin of man may be just now occupying too large a space in our minds compared with his ulterior development and his final destiny? With our eyes fixed on the "Descent," newly disclosed to us, may we not be losing sight of the *Ascent* of man?

There seems, in the first place, to be a tendency to treat the origin of a being as finally decisive of its nature and destiny. From the language sometimes used, we should almost suppose that rudiments alone were real, and that all the rest was mere illusion. An eminent writer on the antiquities of jurisprudence intimates his belief that the idea of human brotherhood is not coeval with the race, and that primitive communities were governed by sentiments of a very different kind. His words are at once pounced upon as a warrant for dismissing the idea of human brotherhood from our minds, and substituting for it some other social principles, the character of which has not yet been definitely explained, though it is beginning in some quarters pretty distinctly to appear. But surely this is not reasonable. There

can be no reason why the first estate of man, which all allow to have been his lowest estate, should claim the prerogative of furnishing his only real and indefeasible principles of action. Granting that the idea of human brotherhood was not aboriginal—granting that it came into the world at a comparatively late period, still it has come, and having come, it is as real and seems as much entitled to consideration as intertribal hostility and domestic despotism were in their own day. That its advent has not been unattended by illusions and aberrations is a fact which does not cancel its title to real existence under the present conditions, and with the present lights of society, any more than it annuls the great effects upon the actions of men and the course of history which the idea has undeniably produced. Human brotherhood was not a part of a primæval revelation; it may not have been an original institution; but it seems to be a real part of a development, and it may be a part of a plan. That the social principles of certain anti-philanthropic works are identical with those which governed the actions of mankind in a primæval and rudimentary state, when man had only just emerged from the animal, and have been since worked off by the foremost races in the course of development, is surely rather an argument against the paramount and indefeasible authority of those principles than in favor of it. It tends rather to show that their real character is that of a relapse, or, as the physiologists call it, a reversion. When there is a vast increase of wealth, of sensual enjoyment, and of the selfishness which is apt to attend them, it is not marvellous that such reversions shall occur.

Another eminent writer appears to think that he has put an end to metaphysical theology, and perhaps to metaphysics and theology altogether, by showing that "being," and the cognate words, originally denoted merely physical perceptions. But so, probably, did all language. So did "spirit," so did "geist," so did "power," so did even "sweet reasonableness," and "the not us which makes for righteousness." Other perceptions or ideas have gradually come, and are now denoted by the words which at first denoted physical perceptions only. Why have not these last

comers as good a claim to existence as the first? Suppose the intellectual nature of man has unfolded, and been brought, as it conceivably may, into relations with something in the universe beyond the mere indications of the five bodily senses—why are we bound to mistrust the results of this unfolding? We might go still further back, and still lower, than to language denoting merely physical perceptions. We might go back to inarticulate sounds and signs; but this does not invalidate the reality of the perceptions subsequently expressed in articulate language. It seems not very easy to distinguish, in point of trustworthiness of source, between the principles of metaphysics and the first principles of mathematics, or to say, if we accept the deductions in one case, why we should not accept them in the other. It is conceivable at least, we venture to repeat, that the development of man's intellectual nature may have enabled him to perceive other things than those which he perceives by means of his five bodily senses; and metaphysics once non-existent, may thus have come into legitimate existence. Man, if the doctrine of evolution is true, was once a creature with only bodily senses; nay, at a still earlier stage, he was matter devoid even of bodily sense. Now he has arrived, perhaps through the exercise of his bodily senses—at something beyond bodily sense, at such notions as *being*, *essence*, *existence*: he reasons upon these notions, and extends the scope of his once merely physical vocabulary so as to comprehend them. Why should he not? If we are to be anchored hard and fast to the signification of primæval language, how are we to obtain an intellectual basis for "the not us which makes for righteousness?" Do not the anti-metaphysicists themselves unconsciously metaphysicize? Does not their fundamental assumption—that the knowledge received through our bodily senses alone is trustworthy—involve an appeal to a mental necessity at much as anything in metaphysics, whether the mental necessity in this case be real or not?

Again, the great author of the Evolution theory himself, in his *Descent of Man*, has given us an account of morality which suggests a remark of the same kind. He seems to have come to the

conclusion that what is called our moral sense is merely an indication of the superior permanency of social when compared with personal impressions. Morality, if we take his explanation as complete and final, is reduced to tribal self-preservation, subtilized into etiquette; an etiquette which, perhaps, a sceptical voluptuary, wishing to remove the obstacles to a life of enjoyment, might think himself not unreasonable in treating as an illusion. This, so far as appears, is the explanation offered of moral life, with all its beauty, its tenderness, its heroism, its self-sacrifice; to say nothing of spiritual life with its hopes and aspirations, its prayers and fanes. Such an account even of the origin of morality seems rather difficult to receive. Surely even in their most rudimentary condition, virtue and vice must have been distinguished by some other characteristic than the relative permanency of two different sets of impressions. There is a tendency, we may venture to observe, on the part of eminent physicists, when they have carefully investigated and explained what seem to them the most important and substantial subjects of inquiry, to proffer less careful explanations of matters which to them seem secondary and less substantial, though possibly to an intelligence surveying the drama of the world from without the distinctly human portion of it might appear the more important of the two. Eminent physicists have been known, we believe, to account summarily for religion as a surviving reminiscence of the serpent which attacked the ancestral ape and the tree which sheltered him from the attack, so that Newton's religious belief would be a concomitant of his remaining trace of a tail. It was assumed that primæval religion was universally the worship of the serpent and of the tree. This assumption was far from being correct; but, even if it had been correct, the theory based on it would surely have been a very summary account of the phenomena of religious life.

However, supposing the account of the origin of the moral sense and of moral life, given in *The Descent of Man*, to be true, it is an account of the origin only. Though profoundly significant, as well as profoundly interesting, it is not more significant, compared with

the subsequent development, than is the origin of physical life compared with the subsequent history of living beings. Suppose a mineralogist or a chemist were to succeed in discovering the exact point at which inorganic matter gave birth to the organic; his discovery would be a great one, and would convey to us a most distinct assurance of the method by which the governing power of the universe works: but would it qualify the mineralogist or the chemist to give a full account of all the diversities of animal life, and of the history of man? Heroism, self-sacrifice, the sense of moral beauty, the refined affections of civilized men, philanthropy, the desire of realizing a high moral ideal, whatever else they may be, are not tribal self-preservation subtilized into etiquette; nor are they adequately explained by reference to the permanent character of one set of impressions and the occasional character of another set. Between the origin of moral life and its present manifestation has intervened something so considerable as to baffle any anticipation of the destiny of humanity which could have been formed from a mere inspection of the rudiments. We may call this intervening force circumstance if we please, provided we remember that calling it circumstance does not settle its nature, or exclude the existence of a power acting through circumstance as the method of fulfilling a design.

Whatever things may have been in their origin, they are what they are, both in themselves and in regard to their indications respecting other beings or influences the existence of which may be implied in theirs. The connection between the embryo and the adult man, with his moral sense and intelligence, and all that these imply, is manifest, as well as the gradual evolution of the one out of the other, and a conclusive argument is hence derived against certain superstitions or fantastic beliefs; but the embryo is not a man, neither is the man an embryo. A physiologist sets before us a set of plates showing the similarity between the embryo of Newton and that of his dog Diamond. The inference which he probably expects us to draw is that there is no essential difference between the philosopher and the

dog. But surely it is at least as logical to infer, that the importance of the embryo and the significance of embryological similarities may not be so great as the physiologist is disposed to believe.

So with regard to human institutions. The writer on legal antiquities before referred to finds two sets of institutions which are now directly opposed to each other, and between the respective advocates of which a controversy has been waged. He proposes to terminate that controversy by showing that though the two rival systems in their development are so different, in their origin they were the same. This seems very clearly to bring home to us the fact that, important as the results of an investigation of origins are, there is still a limit to their importance.

Again, while we allow no prejudice to stand in the way of our acceptance of Evolution, we may fairly call upon Evolution to be true to itself. We may call upon it to recognise the possibility of development in the future as well as the fact of development in the past, and not to shut up the hopes and aspirations of our race in a mundane egg because the mundane egg happens to be the special province of the physiologist. The series of developments has proceeded from the inorganic to the organic, from the organic upwards to moral and intellectual life. Why should it be arrested there? Why should it not continue its upward course and arrive at a development which might be designated as spiritual life? Surely the presumption is in favor of a continued operation of the law. Nothing can be more arbitrary than the proceeding of Comte, who, after tracing humanity, as he thinks, through the Theological and Metaphysical stages into the Positive, there closes the series and assumes that the Positive stage is absolutely final. How can he be sure that it will not be followed, for example, by one in which man will apprehend and commune with the Ruler of the Universe, not through mythology or dogma, but through Science? He may have had no experience of such a phase of human existence, nor may he be able at present distinctly to conceive it. But had he lived in the Theological or the Metaphysical era he would have been equally without experience of the

Positive, and have had the same difficulty in conceiving its existence. His finality is an assumption apparently without foundation.

By Spiritual life we do not mean the life of a disembodied spirit, or anything supernatural and antiscientific, but a life, the motives of which are beyond the world of sense, and the aim of which is an ideal, individual and collective, which may be approached but cannot be attained under our present conditions, and the conception of which involves the hope of an ulterior and better state. The Positivists themselves often use the word "spiritual," and it may be assumed that they mean by it something higher in the way of aspiration than what is denoted by the mere term moral, though they may not look forward to any other state of being than this.

We do not presume, of course, in these few pages to broach any great question, our only purpose being to point out a possible aberration or exaggeration of the prevailing school of thought. But it must surely be apparent to the moral philosopher, no less than to the student of history, that at the time of the appearance of Christianity, a crisis took place in the development of humanity which may be not unfitly described as the commencement of Spiritual Life. The change was not abrupt. It had been preceded and heralded by the increasing spirituality of the Hebrew religion, especially in the teachings of the prophets, by the spiritualization of Greek philosophy, and perhaps by the sublimation of Roman duty; but it was critical and decided. So much is admitted even by those who deplore the advent of Christianity as a fatal historical catastrophe, which turned away men's minds from the improvement of their material condition to the pursuit of a chimerical ideal. Faith, Hope, and Charity, by which the Gospel designates the triple manifestation of spiritual life, are new names for new things; for it is needless to say that in classical Greek the words have nothing like their Gospel signification. It would be difficult, we believe, to find in any Greek or Roman writer an expression of hope for the future of humanity. The nearest approach to such a sentiment, perhaps, is in the political Utopianism of Plato. The social ideal is

placed in a golden age which has irretrievably passed away. Virgil's Fourth Eclogue, even if it were a more serious production than it is, seems to refer to nothing more than the pacification of the Roman Empire and the restoration of its material prosperity by Augustus. But Christianity in the Apocalypse, at once breaks forth into a confident prediction of the ultimate triumph of good over evil, and of the realization of the ideal.

The moral aspiration—the striving after an ideal of character, personal and social, the former in and through the latter—seems to be the special note of the life, institutions, literature, and art of Christendom. Christian Fiction, for example, is pervaded by an interest in the development and elevation of character for which we look in vain in the *Arabian Nights*, where there is no development of character, nothing but incident and adventure. Christian sculpture, inferior perhaps in workmanship to that of Phidias, derives its superior interest from its constant suggestion of a spiritual ideal. The Christian lives, in a manner, two lives, an outward one of necessary conformity to the fashions and ordinances of the present world; an inner one of protest against the present world and anticipation of an ideal state of things; and this duality is reproduced in the separate existence of the spiritual society or Church, submitting to existing social arrangements, yet struggling to transcend them, and to transmute society by the realization of the Christian's social ideal. With this is necessarily connected a readiness to sacrifice present to future good, and the interests of the present world to those of the world of hope. Apart from this, the death of Christ (and that of Socrates also), instead of being an instance of "sweet reasonableness," would be out of the pale of reason altogether.

It is perhaps the absence of an ideal that prevents our feeling satisfied with Utilitarianism. The Utilitarian definition of morality has been so much enlarged, and made to coincide so completely with ordinary definitions in point of mere extent, that the difference between Utilitarianism and ordinary moral Philosophy seems to have become almost verbal. Yet we feel that there is something wanting. There is no ideal of

character. And where there is no ideal of character there can hardly be such a thing as a sense of moral beauty. A Utilitarian, perhaps, would say that perfect utility is beauty. But whatever may be the case with material beauty, moral beauty at all events seems to contain an element not identical with the satisfaction produced by the appearance of perfect utility, but suggestive of an unfulfilled ideal.

Suppose spiritual life necessarily implies the expectation of a future state, has physical science anything to say against that expectation? Physical Science is nothing more than the perceptions of our five bodily senses registered and methodized. But what are these five senses? According to physical science itself, nerves in a certain stage of evolution. Why then should it be assumed that their account of the universe, or of our relations to it, is exhaustive and final? Why should it be assumed that these are the only possible organs of perception, and that no other faculties or means of communication with the universe can ever in the course of evolution be developed in man? Around us are animals absolutely unconscious, so far as we can discern, of that universe which Science has revealed to us. A sea-anemone, if it can reflect, probably feels as confident that it perceives everything capable of being perceived as the man of science. The reasonable supposition surely is, that though science, so far as it goes, is real and the guide of our present life, its relation to the sum of things is not much more considerable than that of the perceptions of the lower orders of animals. That our notions of the universe have been so vastly enlarged by the mere invention of astronomical instruments is enough in itself to suggest the possibility of further and infinitely greater enlargement. To our bodily senses, no doubt, and to physical science, which is limited by them, human existence seems to end with death; but if there is anything in our nature which tells us, with a distinctness and persistency equal to those of our sensible perceptions, that hope and responsibility extend beyond death, why is this assurance not as much to be trusted as that of the bodily sense itself? There is apparently no ultimate criterion of truth,

whether physical or moral, except our inability, constituted as we are, to believe otherwise; and this criterion seems to be satisfied by a universal and ineradicable moral conviction as well as by a universal and irresistible impression of sense.

We are enjoined, sometimes with a vehemence approaching that of ecclesiastical anathema, to refuse to consider anything which lies beyond the range of experience. By experience is meant the perceptions of our bodily senses, the absolute completeness and finality of which, we must repeat, is an assumption, the warrant for which must at all events be produced from other authority than that of the senses themselves. On this ground we are called upon to discard, as worthy of nothing but derision, the ideas of eternity and infinity. But to dislodge these ideas from our minds is impossible; just as impossible as it is to dislodge any idea that has entered through the channels of the senses; and this being so, it is surely conceivable that they may not be mere illusions, but real extensions of our intelligence beyond the domain of mere bodily sense, indicating an upward progress of our nature. Of course if these ideas correspond to reality, physical science, though true so far as it goes, cannot be the whole truth, or even bear any very considerable relation to the whole truth, since it necessarily presents being as limited by space and time.

Whither obedience to the dictates of the higher part of our nature will ultimately carry us, we may not be able apart from revelation to say; but there seems no substantial reason for refusing to believe that it carries us towards a better state. Mere ignorance, arising from the imperfection of our perceptive powers, of the mode in which we shall pass into that better state, or of its precise relation to our present existence, cannot cancel an assurance otherwise valid, of our general destiny. A transmutation of humanity, such as we can conceive to be brought about by the gradual prevalence of higher motives of action, and the gradual elimination thereby of what is base and brutish, is surely no more incredible than the actual development of humanity, as it is now, out of a lower animal form or out of inorganic matter.

What the bearing of the automatic

theory of human nature would be upon the hopes and aspirations of man, or on moral philosophy generally, it might be difficult, no doubt, to say. But has any one of the distinguished advocates of the automatic theory ever acted on it, or allowed his thoughts to be really ruled by it for a moment? What can be imagined more strange than an automaton suddenly becoming conscious of its own automatic character, reasoning and debating about it automatically, and coming automatically to the conclusion that the automatic theory of itself is true? Nor is there any occasion here to entangle ourselves in the controversy about Necessarianism. If the race can act progressively on higher and more unselfish motives, as history proves to be the fact, there can be nothing in the connection between our actions and their antecedents inconsistent with the Ascent of man.

Another possible source of serious aberration, we venture to think, will be found in the misapplication of the doctrine of *survivals*. Some lingering remains of its rudimentary state in the shape of primæval superstitions or fancies continue to adhere to a developed and matured belief; and hence it is, inferred, or at least the inference is suggested, that the belief itself is nothing but a "survival," and destined in the final triumph of reason to pass away. The belief in the immortality of the soul, for example, is found still connected in the lower and less advanced minds with primæval superstitions and fancies about ghosts and other physical manifestations of the spirit world; as well as with funeral rites and modes of burial indicating irrational notions as to the relations of the body to the spirit. But neither these nor any special ideas as to the nature of future rewards and punishments, or the mode of transition from the present to the future state, are really essential parts of the belief. They are the rudimentary imaginations and illusions of which the rational belief is gradually working itself clear. The basis of the rational belief in the immortality of the soul, or, to speak more correctly, in the continuance of our spiritual existence after death, is the conviction, common, so far as we know, to all the higher portions of humanity, and apparently ineradicable,

that our moral responsibility extends beyond the grave; that we do not by death terminate the consequences of our actions, or our relations to those to whom we have done good or evil; and that to die the death of the righteous is better than to have lived a life of pleasure even with the approbation of an undiscerning world. So far from growing weaker, this conviction appears to grow practically stronger among the most highly educated and intelligent of mankind, though they may have cast off the last remnant of primitive or mediæval superstition, and though they may have ceased to profess belief in any special form of the doctrine. The Comtists certainly have not got rid of it, since they have devised a subjective immortality with a retributive distinction between the virtuous and the wicked; to say nothing of their singular proposal that the dead should be formally judged by the survivors, and buried, according to the judgment passed upon them, in graves of honor or disgrace.

With regard to religion generally there is the same tendency to exaggerate the significance of "survivals," and to neglect, on the other hand, the phenomena of disengagement. Because the primitive fables and illusions which long adhere to religion are undeniably dying out, it is asserted, or suggested, that religion itself is dying. Religion is identified with mythology. But mythology is merely the primæval matrix of religion. Mythology is the embodiment of man's childlike notions as to the universe in which he finds himself, and the powers which for good or evil influence his lot; and when analysed, it is found beneath all its national variations to be merely based upon a worship of the sun, the moon, and the forces of Nature. Religion is the worship and service of a moral God and a God who is worshipped and served by virtue. We can distinctly see, in Greek literature for instance, religion disengaging itself from mythology. In Homer the general element is mythology, capable of being rendered more or less directly into simple nature-worship, childish, non-moral, and often immoral. But when Hector says that he holds omens of no account, and that the best omen of all is to fight for one's country, he shows an incipient reliance on a Moral

Power. The disengagement of religion from mythology is of course much further advanced and more manifest when we come to Plato; while the religious faith, instead of being weaker, has become infinitely stronger, and is capable of supporting the life and the martyrdom of Socrates. When Socrates and Plato reject the Homeric mythology, it is not because they are sceptics but because Homer is a child.

But it is in the Old Testament that the process of disengagement and the growth of a moral out of a ceremonial religion are most distinctly seen:—

“ ‘Wherewith shall I come before Jahveh,
And bow myself down before God on high?
Shall I come before him with burnt offerings,
With the sacrifice of calves of a year old?
—Will Jahveh be pleased with thousands of rams,
With ten thousands of rivers of oil?
Shall I give my first-born for my transgression,
The fruit of my body for the sin of my soul?’
‘—He hath showed thee, O man, what is good,
And what Jahveh doth require of thee;
What but to do justly, to love mercy,
And to walk humbly with thy God?’ ”

Here no doubt is a belief in the efficacy of sacrifice, even of human sacrifice, even of the sacrifice of the first-born. But it is a receding and dying belief; while the belief in the power of justice, mercy, humility, moral religion in short, is prevailing over it and taking its place.

So it is again in the New Testament with regard to spiritual life and the miraculous. Spiritual life commenced in a world full of belief in the miraculous, and it did not at once break with that belief. But it threw the miraculous into the background and anticipated its decline, presaging that it would lose its importance and give place finally to the spiritual. “Though I speak with the tongues of men and of angels, and have not charity, I am become as sounding brass or a tinkling cymbal. And though I have the gift of prophecy, and understand all mysteries, and all knowledge; and though I have all faith, so that I could remove mountains, and have not charity, I am nothing. . . . Charity never faileth; but whether there be prophecies, they shall fail; whether

there be tongues, they shall cease; whether there be knowledge, it shall vanish away. For we know in part, and we prophesy in part. But when that which is perfect is come, then that which is in part shall be done away.” Clearly the writer of this believes in prophecies, in tongues, in mysteries. But clearly, also, he regards them as both secondary and transient, while he regards charity as primary and eternal.

It may be added that the advent of spiritual life did at once produce a change in the character of the miraculous itself, divested it of its fantastic extravagance, and infused into it a moral element. The Gospel miracles, almost without exception, have a moral significance, and can without incongruity be made the text of moral discourses to this day. An attempt to make Hindoo or Greek miracles the texts of moral discourses would produce strange results.

Compared with the tract of geological, and still more with that of astronomical time, spiritual life has not been long in our world; and we need not wonder if the process of disengagement from the environments of the previous state of humanity is as yet far from complete. Political religions and persecution, for instance, did not come into the world with Christ, they are survivals of an earlier stage of human progress. The Papacy, the great political Church of mediæval Europe, is the historical continuation of the state religion of Rome and the Pontificate of the Roman emperors. The Greek Church is the historical continuation of the Eastern offset of the same system. The national State Churches are the historical continuations of the tribal religions and priest-hoods of the Northern tribes. We talk of the conversion of the Barbarians, but in point of fact it was the chief of the tribe that was converted, or rather that changed his religious allegiance, sometimes by treaty (as in the case of Guthrum), and carried his tribe with him into the allegiance of the new God. Hence the new religion, like the old, was placed upon the footing of a tribal, and afterwards of a state, religion; heresy was treason; and the state still lent the aid of the secular arm to the national priesthood for the repression of rebellion against the established faith. But since

the Reformation, the process of disengagement has been rapidly going on; and in the North American communities, which are the latest developments of humanity, the connection between Church and State has ceased to exist, without any diminution of the strength of the religious sentiment.

Whether there is anything deserving of attention in these brief remarks or not, one thing may safely be affirmed: it is time that the question as to the existence of a rational basis for religion and the reality of spiritual life should be studied, not merely with a view of overthrowing the superstitions of the past, but of providing, if possible, a faith for the present and the future. The battle of criticism and science against superstition has been won, as every open-minded observer of the contest must be aware, though the remnants of the broken host still linger on the field. It is now time to consider whether religion must perish with superstition, or whether the death of superstition may not be the new birth of religion. Religion survived the fall of Polytheism; it is surely conceivable that it may survive the fall of Anthropomorphism, and that the desperate struggle which is being waged about the formal belief in "Personality," may be merely the sloughing off of something that, when it is gone, will be seen to have not been vital to religion.

There are some who would deter us from inquiring into anything beyond the range of sensible experience, and especially from any inquiry into the future existence of the soul, which they denounce as utterly impractical, and compare with obsolete and fruitless inquiries into the state of the soul before birth. We have already challenged the exclusive claim of the five bodily senses to be the final sources of knowledge; and we may surely add that it is at least as practical to inquire into the destiny as it is to inquire into the origin of man.

If the belief in God and in a Future state is true, it will prevail. The cloud will pass away and the sun will shine

out again. But in the mean time society may have "a bad quarter of an hour." Without exaggerating the influence of the belief in Future Reward and Punishment, or of any form of it, on the actions of ordinary men, we may safely say that the sense of responsibility to a higher Power, and of the constant presence of an all-seeing Judge, has exercised an influence, the removal of which would be greatly felt. Materialism has in fact already begun to show its effects on human conduct and on society. They may perhaps be more visible in communities where social conduct depends greatly on individual conviction and motive, than in communities which are more ruled by tradition and bound together by strong class organizations; though the decay of morality will perhaps be ultimately more complete and disastrous in the latter than in the former. God and future retribution being out of the question, it is difficult to see what can restrain the selfishness of an ordinary man, and induce him, in the absence of actual coercion, to sacrifice his personal desires to the public good. The service of Humanity is the sentiment of a refined mind conversant with history; within no calculable time is it likely to overrule the passions and direct the conduct of the mass. And after all, without God or spirit, what is "Humanity"? One school of science reckons a hundred and fifty different species of man. What is the bond of unity between all these species, and wherein consists the obligation to mutual love and help? A zealous servant of science told Agassiz that the age of real civilization would have begun when you could go out and shoot a man for scientific purposes; and in the controversy respecting the Jamaica massacre we had proof enough that the ascendancy of science and a strong sense of human brotherhood might be very different things. *Apparent dira facies.* We begin to perceive, looming through the mist, the lineaments of an epoch of selfishness compressed by a government of force.—*Macmillan's Magazine.*

ANECDOTES OF AN EPICURÉ.

BRILLAT-SAVARIN, whose destiny was to popularise a rational theory of diet, first saw the light at Belley, on April 1, 1755. He was brought up to the profession of the law, and till the outbreak of the Revolution led the tranquil uneventful life of a provincial advocate. The only incident of his youth of which he makes mention is a visit to the abbey of St. Sulpice—to be marked with a white stone even in his Epicurean Calendar. Brillat-Savarin was very fond of music—a circumstance which afterwards went near to save his head—and was leader of an amateur troop which often serenaded the ladies of Belley. The Abbot of St. Sulpice invited him and his friends to come and assist in the performance of High Mass on the festival of St. Bernard, Patron Saint of the monastery. "The Saint," courteously observed the Abbot, "will thereby be glorified; our neighbors will be delighted, and you will have the honor of being the first Orpheus who shall have penetrated into those lofty regions" (the monastery was perched high on the mountain side).

One fine summer night, accordingly, Brillat-Savarin and his friends set out for the convent, where they arrived at an early hour on the following morning. Here we get a glimpse of the old conventual hospitality, now mere tradition of the past, then a substantial fact. The Father Cellarer received them. "Welcome, Gentlemen," he said; "our Reverend Abbot will be right pleased to hear of your arrival: he is still in bed, having fatigued himself yesterday; but come with me and you shall see whether you were expected." They followed him into the refectory, where, in the midst of a spacious table, rose a pasty "as big as a church:" it was flanked on the north by a quarter of cold veal, on the south by an enormous ham, on the east by a monumental pyramid of cool, fresh butter, on the west by a bushel of artichoke salad. There was fruit too, as well as white napkins, and silver plate; lay-brothers also and servants ready to help the viands. Nor should we forget to add that in a corner of the hall, a hun-

dred bottles of unmistakable aspect reposed beneath a fountain of running water, which as it flowed seemed to murmur *Evoë Bacche*. The travellers were in no way staggered at the prospect of dealing with such a breakfast at four A.M.: in those days coffee was not taken early in the day. The Father Cellarer excused himself for being unable to join them—he had to say Massmean: while they were to make themselves at home.

After breakfast they all found nice warm beds awaiting them and were allowed to sleep till the hour of Divine Service. There they acquitted themselves remarkably well and were much complimented by their host. It was now noon, and time for dinner—naturally a more solid meal than breakfast. Of roast meat alone there were fourteen different kinds, while the dessert comprised the most delicious fruits of the valley, brought up at considerable labor and cost to the heights from which the monastery commanded its magnificent prospect. The coffee, adds Brillat-Savarin, was delicious: it was served not in the tiny cups of a degenerate age, but in fair deep bowls in which the good brothers plunged their thick lips with a noise which would have done honor to spermaceti whales before a storm. After dinner, Vespers; after Vespers, everyone might do as he pleased. The Abbot bade them good night. "I don't think," said the kindly old man, "that my presence would be troublesome to the brothers; but I wish them to know they have full liberty. St. Bernard's Day comes but once a year; to-morrow we shall re-enter on the accustomed routine; *cras iterabimus aquor*." And in truth, though the Abbot was beloved by all, there was a good deal more noise after his departure than before. The fun soon became fast and furious; and a delicate little supper towards nine o'clock put everybody into high spirit. As the night deepened a voice was heard: "Father Cellarer, where is your dish?"—"Tis too true"—answered his Reverence, "I am not Cellarer for nothing." He left the hall, and presently returned, followed by three servants, of whom the first bore

a mighty dish of buttered toast, the other two carried a table on which stood a veritable tub of brandy, sweetened and flaming—a substitute for punch, of which the French were then ignorant.

This was the sign the feast was o'er.

The toast was eaten and the brandy drunk; then as the stroke of midnight was heard the company parted, beds being again provided for the guests.

This was in the year 1782, when fears of change were already beginning to disquiet kings and monks. At St. Sulpice it was whispered that a reforming Abbot, of the strictest temper, would soon replace the venerable chief under whose gentle rule everyone was so happy; and for Brillat-Savarin there were days of trouble ahead. In 1789 he was returned by his fellow-citizens to the States-General; and subsequently named, firstly, President of the Civil Tribunal in the Department of the Ain, and, afterwards, Judge of the Court of Appeal. These facts deserve to be mentioned, for one of the best morals of Brillat-Savarin's life is that work is absolutely necessary to enjoyment. He himself, much as he loved a good dinner, thoroughly despised a man who loved nothing else. On this subject he tells a curious story of an emigrant noble he met at Lausanne, a fine, strong, healthy-looking man, but of a laziness perfectly phenomenal. Work of any kind seemed to him the thing most to be dreaded in this world, and he would have died of hunger with the best grace in the world if a worthy tradesman of the town had not opened a credit for him at an eating-house, by which he was enabled to dine on the Sunday and Wednesday in each week. On those days he crammed himself up to the cesophagus and pocketed a huge piece of bread; then quietly retired to sleep or lounge away the hours till next dinner-time. As often as he felt gnawing sensations in the stomach he drank water. When Brillat-Savarin saw him he had subsisted for three months on this extraordinary diet, and was not ill in the conventional sense of the word, only oppressed with an unnatural languor. "I asked him to dinner," writes his compatriot, "at my inn, where he officiated in a way to make one tremble. But I did not renew the invitation, because I love

to see men bravely fronting adversity and obeying, when they must, that judgment issued against the human race, 'In the sweat of thy brow shalt thou eat bread.'"

Meanwhile Brillat-Savarin continued to be held in such high esteem by his fellow-townsmen that in 1793 they had elected him to the perilous office of Mayor, when he opposed a vigorous resistance to the emissaries of Marat and Robespierre; soon, however, he was obliged to fly for his life, and it was then that he visited first Switzerland and afterwards the United States. But before quitting the soil of his beloved country, he was to meet with a little adventure which he ever afterwards loved to recall. He was bound for Dôle, hoping to obtain from the Citizen Representative Prôt that safe-conduct which had become necessary to keep him at a convenient distance from prison and the scaffold. Mounted on a serviceable nag which he had named "Joy," he rode cheerfully enough along the smiling landscape bounded by the heights of the Jura, and, about eleven o'clock one bright morning, put up at an old-fashioned snug-looking inn, the principal hostelry of the village of Mont-sous-Vandrey. Having seen to his horse, Brillat-Savarin passed into the kitchen, where a joyous spectacle presented itself to his enraptured gaze. Quails, leverets, and a fine turkey were placidly roasting before the fire, and these seemed but a tithe of the delectable things which were evidently on the point of being served. "Good," he thought; "Providence does not entirely desert me. Let us pluck this fowl too in passing. There will always be time to die." Then turning to mine host, "Mon cher," he asked, "what are you going to give me for dinner that is good?" "Nothing that is not good, Monsieur: good boiled beef, good potato-soup, good shoulder of mutton, and good beans." A chill of disap-

* Brillat-Savarin had some pleasanter recollections of Lausanne, notably of the *Lion d'Argent*, where (British tourists may sigh as they read) an excellent dinner of three courses, including game from the neighboring mountains, and fresh fish from Lake Lemman, and a delicious white wine *ad libitum*, was to be had, all for the sum of one shilling and nine pence.

pointment ran through the frame of the traveller. He never ate boiled beef, which he justly observed was meat deprived of its juice; potatoes and beans were too fattening, and for shoulder of mutton he had no fancy. "For whom then is this feast?" he demanded in disconsolate tones. The host explained. Four advocates had been in those parts to settle a great case; an arrangement had happily been arrived at, and they were on the point of celebrating the happy termination of the business by a cosy little dinner. "Monsieur," quoth Brillat-Savarin, after musing a few seconds, "will you be so good as to present them my compliments and say that a gentleman of quality* requests as a particular favor to be admitted to dine with them, that he is ready to take his share of the expense, and that he will always esteem himself their debtor?" The host withdrew and a period of painful suspense followed. But in a minute or two, a fat, neat, rosy little gentleman entered the kitchen, examined a saucepan or two, looked at the roast, and retired. Another minute and mine host returned. "Monsieur," he said, "the gentlemen are extremely flattered by your proposal, and only await your presence to sit down to dinner." "What a dinner!!!" exclaims Brillat-Savarin, with three points of exclamation, recalling the happiness of that day. The barristers proved delightful companions and accorded him the heartiest welcome, while the food and wine were such as few monster hotels of modern days can furnish. It may be guessed that the newcomer was not allowed to pay a centime, and towards evening went cheered and invigorated on his lonely journey. Good fortune never comes single; and at Dôle, the ex-Mayor succeeded in winning the good graces of Madame Prôt by his vocal and musical talent. "Citizen," she said, "when a man cultivates the fine arts as you do, he does not betray his country. I know you have some request to prefer to my husband: it shall be granted; it is I who promise you." And, truly enough, on the following morning he received his passport, signed and sealed. Ladies' logic is a fearful and wonderful thing.

From Dôle Brillat-Savarin passed into Switzerland and ultimately proceeded to America. In the *Physiologie du Goût* he gives but a brief account of his residence in the United States. It resembles in fact the famous chapter on Snakes, and runs as follows:—

"Séjour en Amérique. . . ."

The truth is that the lively Frenchman was very much bored in the territory of the Great Republic, where, like Talleyrand, he regretted to find but one dish to thirty-two religions. And yet New York was ever memorable to him as the scene of what he justly calls a national victory—when the Briton succumbed and the Gaul remained master of the field.

Brillat-Savarin was wont to spend his evenings at Little's, a famous tavern of Old Gotham, where, with the Vicomte de la Massue and M. Fehr, he loved to enjoy a modest supper of Welsh rarebits and cider. Occasionally he was joined by Mr. Wilkinson, a Jamaica planter, a good fellow and thorough gentleman, as his French friend takes care to inform us. Still, manners were rough in those days, and Mr. Wilkinson probably thought it would be a capital joke to see three "frogs" under the table. With this amiable intention, he asked the enemies of his native land to dinner; and they frankly accepted his invitation. Fortunately for Brillat-Savarin, as he was leaving Little's that evening, the waiter drew him aside and warned him that the invitation was in reality a challenge to a hard drinking bout. He was exceedingly annoyed, being too much of a *gourmet* to relish such orgies; still the instinct of combat would not allow him to withdraw, and moreover he was confident of his own strength and only uneasy for his compatriots. "I desired," he says, "the triumph of the nation and not that of the individual." Accordingly he addressed a "severe allocution" to Fehr and Massue, and warned them to drink slowly and to try and throw away some of their wine while he distracted the attention of Mr. Wilkinson and the other Englishman who was to be present. Also to eat gently but constantly. Finally, before setting out for Little's, on the following day, he made his friends share with him a plateful of bitter almonds, which are said to be a prophylactic against intoxication.

* Gallicé, "homme de bonne compagnie."
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The dinner, we are assured, consisted of a "rotsbeef," a turkey cooked in its gravy, boiled "roots" (?), a salad of raw cabbage, and a jam tart. The wine was claret, for which, bye and bye, was substituted port, while to port succeeded madeira. Dessert was now on the table. It consisted of biscuits, butter, and nuts, aliments which encourage the consumer to drink. It was beginning to be warm work for all concerned; but Brillat-Savarin observed, with pleasure, that his friends had followed his advice, and that Fehr, in particular, had contrived to empty a good many glasses of wine into a beer-jug which stood neglected at his end of the table. The three Frenchmen looked still fresh when Mr. Wilkinson called for spirits—an order which made Brillat-Savarin, for the first time that evening, feel nervous. He dexterously avoided the grosser forms of drinking spirits, by asking in his turn for a bowl of punch. Little brought it in himself. It would have sufficed for forty persons, but was happily accompanied by a supply of buttered toast. After one or two glasses had been drunk, B. observed, with pleasure, that Mr. Wilkinson's face had turned to a crimson-purple, and that his eyes looked haggard, while his friend's head was steaming like a kettle. Fehr and Massue, on the other hand, were still cool. The catastrophe came much sooner than B. had expected. Mr. Wilkinson suddenly sprang to his feet, as if seized by a happy inspiration, and began, in trumpet tones, to thunder forth *Rule Britannia*; then, quite as suddenly, dived under the table, where he preferred to remain. His friend, laughing loudly, stooped forward to pick him up; then he, too, lay extended on the floor. The Frenchmen were victorious, and drank a final glass of punch, with Little, to the health of the vanquished. Next morning all the New York papers contained accounts of the battle; and the New York papers were copied by all the others in the United States.

Fortunately for himself, Brillat-Savarin seems to have possessed some remnants of a private fortune, and the days of his exile were not embittered by the constant struggle for daily bread which so many of his fellow-countrymen had to wage. One of his friends turned weaver and quietly descended into a lower grade

of the social scale; another earned a handsome sum of money by making salads in London. When he had realised 80,000 francs (3,200*l.*), he was enabled to return to France, buy a snug little property in Limousin, and live the pleasant and dignified life of a country squire. The history of this gentleman, indeed—D'Albignac by name (of unmistakably "noble" stock) is worth a digression, if only from the curious light which it throws upon English manners and customs at the close of the last century. D'Albignac was dining one day at a famous inn in the City, and five or six "dandies," or swells of the period, as our own slang has it, were dining at a neighboring table. Presently one of them got up and addressed him in very polite tones. "Mossieu, they say that your nation excels in the art of making salads; would you do us the favor to mix one for us?" After a second's hesitation, D'Albignac agreed; and while dressing the lettuce, replied, without embarrassment, to the questions which his new acquaintance put to him. He even avowed, with a slight blush, that he was in receipt of pecuniary assistance from the English Government. In shaking hands with him, one of the young men contrived to leave a five-pound note in his grasp. He, on the other hand, gave his address; and was not greatly surprised when, a few days later, he received a letter entreating him as a special favor to come and make the salad that evening at a large house in Grosvenor Square, where a dinner-party was to be given. He went, and received a very handsome present; while the salad proved so good, that "the Frenchman" was soon in general request, and no entertainment was thought complete without him. It should be added that D'Albignac's salads were quite unlike the simple preparations of the modern French kitchen which go by that name. He would mix together oils, flavored with fruit, vinegar, soy, caviare, truffles, anchovies, "calchup" (quære: ketchup?), gravy, and the yoke of eggs.

O dura majorum ilia!

Brillat-Savarin himself could not afford to be altogether idle; and during his stay in New York he added to his means by giving lessons in French, and joining

the orchestra of the principal theatre in that town. In 1796, to his intense joy, he was able to bid farewell to the ungenial American climate, and to sail for France. He soon obtained honorable employment in the public service, being successively Secretary to the General Staff of the Army in Germany, Government Commissioner to the Departmental Tribunal of the Seine-et-Oise, and, finally, Counsellor in the Court of Appeal. Henceforth his life flowed on in an unbroken current of tranquil and useful labor. He had done with politics; but, like Congreve in his retirement, "he had civil words and small good offices for men of every shade of opinion. And men of every shade of opinion spoke well of him in return." He was conservative enough, however, to be pleased at the restoration of the ancient line, which he may have hoped would bring back the ancient ways, the grand old politeness, the wit, and the social wisdom of former times. But they did not altogether, as Frenchmen are the first to acknowledge. Twenty years of civil and foreign wars had perhaps made men too serious to recognise sufficiently the importance of small things.

Among the minor innovations of that changeful epoch, few so deeply grieved conservative epicures as the revolution wrought by Anglomania in the economy of the table. The very names of dishes began to be anglicised, and, to this day, Frenchmen never think of designating a beef-steak or a dish of roast-beef save by their English names incorrectly spelt. The English fashion of serving fish after soup was also introduced by the returned émigrés; and, though pronounced a grave mistake by more than one competent authority, it has continued to hold its ground. On the other hand, Brillat-Savarin praises the practice of taking a glass of madeira with the soup, which the French also owe to us; but there was another Britannic custom which annoyed and even shocked him—viz. that of using finger-glasses, with little glasses of warm water for rinsing the mouth. He pronounced it to be an "innovation equally useless, indecent, and disgusting. Useless, because persons who know how to eat keep their mouths sweet to the end of the meal; they have cleansed them either with fruit,

or with the last glasses of wine that are drunk at dessert; *indecent*, for it is a generally recognised principle that all ablutions should be conducted in the privacy of a dressing-room; *disgusting*, for the prettiest and freshest mouth loses its charms when it usurps the functions of the evaculatory organs. And what will be the aspect of a mouth that is neither pretty nor fresh?"

It was in 1825 that Brillat-Savarin, at the age of 70, published his famous work "*Physiologie du Goût*," which deserved to confer on him an immortality of the second class, if the gradations of fame could be nicely measured. "The book itself," says a thoughtful critic, "is charmingly written, accomplishes all that it professes, exactly meets the tastes and satisfies the capacities of the wide circle to which it is addressed; is lively, genial, racy, and just sufficiently seasoned with well-told and timely anecdotes." Indeed, how can a well-written book on eating fail to be of universal interest? It should be added that some of the stories, though they would have seemed perfectly harmless to the generation which laughed over *Tom Jones*, are a little too unlaced according to the ideas of the 19th century.

The work opens with twenty aphorisms, which rival the famous maxims of Pelham on the art of dressing. They are:—

I. The Universe is nothing except through life, and everything which lives nourishes itself.

II. Animals feed; man eats; a man of wit and breeding alone knows how to eat.

III. The destiny of nations depends on the way in which they nourish themselves.

IV. Tell me what you eat, and I will tell you what you are.

V. The Creator, in obliging man to eat in order that he may live, invites him by appetite, and rewards him by pleasure.

VI. Taste is an act of our judgment, by which we accord the preference to things which are palatable over those which are not.

VII. The pleasures of the table are for all ages, all conditions, all countries, and all days; they can associate themselves with all other pleasures, and remain to console us for their loss.

VIII. The dining-room is the only place where you are never bored during the first hour.

IX. The discovery of a new dish does more for the happiness of the human race than the discovery of a new constellation.

X. Those who get an indigestion, and those who get drunk, know neither how to eat nor how to drink.

XI. The order of edibles is from the more substantial to the lighter.

XII. The order of drinks is from the lighter to the more heady and more perfumed.

XIII. To assert that there should be no change of wines at dinner is a heresy; the tongue surfeits itself; and, after the third glass, the best wine produces but a dull sensation.

XIV. A dessert without cheese is even as a fair woman who lacketh an eye.

XV. A man may become a cook, but he must be born a roaster.

XVI. The most indispensable quality in a cook is punctuality; the same quality is required of a guest.

XVII. To wait too long for a guest who is late is a want of politeness for all who are present.

XVIII. He who receives his friends, and bestows no thought on the meal to be prepared for them, is unworthy to have friends.

XIX. The mistress of the house ought always to assure herself that the coffee is excellent; the master should see that the wines are of the best brand.

XX. To invite anyone to dinner is to make yourself responsible for his happiness during the time he is under your roof.

The truth of most of these aphorisms will be admitted by all; even the third, which to a thoughtless person might appear flippant, is the statement of a weighty historical fact, though possibly ridden to death by the late Mr. Buckle. At all events, we English have long echoed the opinion of the ancient chronicler who ascribed the superiority of the English gentry over the Castilian in war to the circumstance that the former were "nourished with tender meat and good ale," while the golden youth of Spain regaled itself on garlic and sherry. The fifth aphorism, again, is a gay ver-

sion of Paley's noble argument on the proofs of the existence of a Creator from the benevolent design to be seen in his works. The thirteenth, on the other hand, will hardly commend itself to those who think three glasses of wine amply sufficient at dinner, or to those who think them too much. It may be observed on this subject, that though teetotalism as a religion would have been wholly unintelligible to Brillat-Savarin, he was not only an extremely temperate man, but somewhat opposed to the generality of his countrymen in approving of the Anglo-American fashion of taking only tea or coffee, instead of wine, with breakfast; and as a sovereign digester after a full meal, he recommends, not the popular glass of liqueur, or cognac, but a cup of chocolate. He also strongly insists on the superiority of chocolate to tea or coffee from a hygienic point of view; and with him all doctors agree. Of the dangers of coffee, indeed, he gives a striking instance, having seen in London, "sur la place de Leicester," a man who had become a hopeless cripple from immoderate indulgence in the use of that potent beverage. The votary of Mocha was bent almost double, but he had ceased to suffer, and by a strong effort of the will had succeeded in reducing himself to five or six cups of his favorite drink a day. Brillat-Savarin was himself obliged to give up taking coffee in his old age, finding its effects too strong. The Duc de Massa, Minister of Justice, once required a spell of hard work from him at only a few hours' notice, and he saw no way of accomplishing it except by sitting up all night. After dinner, accordingly, he took two cups of strong coffee, and had no disposition, or indeed ability, to sleep for forty hours afterwards.

He who wrote so well and so enthusiastically of the pleasures of the table, would be perfectly content with the simplest meal, and entertained a robust contempt for persons who were afraid to "rough it" in troublous times. Yet we have seen that he was perfectly alive to the charms of a good dinner in the midst of the perils of a journey on which his life was at stake; and he never let slip an opportunity. On this head, another of his adventures deserves to be related, though it too is the record of a triumph

over our own compatriots. He was travelling with two ladies whom he had promised to escort as far as Melun. They had started early in the morning, and arrived at Montgeron with threatening appetites. But, alas! at the inn where they put up there seemed absolutely nothing left to eat, owing to the ravages of three "diligences" full of travellers, to say nothing of post-chaises. Only an excellent leg of mutton turned before the fire in the most approved of fashions. Unhappily, it belonged to three Englishmen, who had brought it with them, and who were sitting upstairs drinking champagne and awaiting its arrival. "But, at least," said Brillat-Savarin to the cook, "you could dress us some eggs in the gravy." The cook assented, propounding the more than questionable doctrine that the gravy belonged to him of right as his perquisite. While he was engaged in breaking the eggs, Brillat-Savarin approached the leg of mutton and drew a large pocket-knife on fell designs intent; therewith he inflicted twelve deep wounds on the unresisting meat, which soon gave up the last drop of its vital juice. By and by, the French party was making a delicious breakfast on *œufs brouillés au jus*, with cups of steaming coffee and cream; and laughing merrily at the thought that they had the substance of the leg of mutton, while the luckless English were endeavoring to masticate the fibrous tissue, which was all that remained of it.

One other travelling experience of Brillat-Savarin's must be given, if only to show that he had a son worthy of him. At a country inn at which he put up he found four turkeys being roasted, and forthwith demanded one for his own dinner; when to his surprise he learnt that they had all been bespoken for a gentleman. "For one gentleman?" demanded B., in an incredulous tone. "Yes, Monsieur." "He has, doubtless, a large party with him?" "On the contrary, he is alone." "Do you happen to know his name?" "I think it is a M. Brillat-Savarin." "It must be my son," exclaimed the astonished father, and desired to be shown into the room where his offspring was dreaming of coming pleasures. After the first greetings, the sire demanded an explanation, which he received in the frankest terms. "The

fact is, Sir," began this true chip of the old block, "there is a particular slice of the turkey of which I am extremely fond, and which, whenever I am in your company, you eat. Being alone, I determined to regale myself on my favorite morsel without stint." This was a defence which the father could especially appreciate, by the token that, being an extremely good-natured man, he looked with a friendly eye on the weaknesses of our common humanity. A friend once said to him, "The despair of my life is that I can never get my fill of oysters." "Come and dine with me," answered Brillat-Savarin, "and you shall have your fill." The friend, a M. Laperte, came punctual to his time, and was soon engaged in an interesting conference with the oysters. B. looked on quietly for an hour, by which time M. Laperte had given good news of 31 dozen, and was proceeding as fresh as ever to discuss the 32nd dozen, when his host, wearied with long inaction, said: "My poor friend, not to-day will destiny allow you to eat your fill," and rang for the soup. M. Laperte did ample justice to the excellent dinner which followed. Brillat-Savarin's veracity was never impeached, so that after reading his narrative one may well credit the story that the Emperor Heliogabalus was in the habit of taking 400 oysters, 100 ortolans, and 100 peaches for his breakfast every morning.

Brillat-Savarin gives one or two other instances of the capacity of the human stomach. Thus, General Bisson drank eight quart bottles of wine every morning at breakfast; neither the clearness of his mind nor the cheerfulness of his temper seeming to be impaired thereby. General Sibuet, a gallant officer, who died on the field of honor in 1813, at the passage of the Bober, was equally gifted with the power of making a beast of himself. He was eighteen years old, when he strolled one evening into the kitchen of Genin, who kept one of the best inns at Belley. A magnificent turkey was at that very moment being taken off the spit, and young Sibuet's mouth watered. "I have just dined," he said to the landlord, "and yet I could eat that turkey whole." Several countrymen were seated at the kitchen fire, eating chestnuts and drinking white wine. Said one of them, a substantial-looking farmer, in

the corrupt provençal of the country, "Sez vosu mezé, z'u payo; è sez voscaca en fotaz, i-zet vo ket pairéet may ket mazerai la restaz," which, being interpreted, means, "If you eat it, I will pay; but if you give in on the road, you shall pay, and I shall eat the rest." The challenge was accepted, and the future general, as became him, set methodically to work. The two wings and a drumstick disappeared with such alarming rapidity that "Hai!" called out the farmer, in agony, "ze vaie praou qu'izet fotu; m'ez, Monche Chibouet, poez kaet zu daive paiet, lessé m'en à m'en mesiet on mocho." ("Alas! I see well that it is all over; but, Monsieur Sibuet, since I am to pay, suffer me at least to eat a morsel myself.")

With mere voracity, however, Brillat-Savarin was too refined to have any sympathy; and when he sings the praise of *Gourmandise* he is careful to explain that it has nothing in common with greediness or gluttony. For this reason we must regret that the word has no precise equivalent in the English language, our sturdy fathers having failed to appreciate the nicer shades of epicureanism. ("They know nothing, these English," said an Indian, contemptuously, "except to spin cotton and conquer the world.") "La Gourmandise," insists the author of the *Physiologie du Goût*, "est ennemie des excès." It must be so, or how could the portrait of a pretty *gourmande* have been drawn in such charming colors? Thus does Brillat-Savarin sketch her:—

"Nothing is more agreeable to see than a pretty *gourmande* armed for conquest: her napkin is daintily arranged; one of her hands reposes on the table; the other conveys to her mouth the little morsels so deftly cut, or the wing of partridge she must bite; her eyes are bright, her lips of nature's enamel, her conversation sprightly; all her motions are graceful; nor is she without that spice of coquetry which women put into everything. With so many advantages she is irresistible; and Cato the Censor would have yielded to the gentle influence."

Such a one was Madame X., whom the author first met at a dinner-party when she was but fifteen years old. She was already very pretty, of a sensuous order

of beauty. "Do you know," whispered Brillat-Savarin to his neighbor, "that that little girl is a *gourmande*?" "Nonsense," replied the other, "she has not arrived at the age of *gourmandise*: she is a mere child." "Wait and see," rejoined Brillat-Savarin, who was a disciple of Lavater and Gall, and seldom deceived in faces. Nevertheless, as the dinner proceeded, he began to fear that he had made a mistake, and regretted the circumstance only because his observations had been directed by scientific considerations, and he was grieved that Science should be mistaken. Still he consoled himself by remembering that there are exceptions to every rule. But with the dessert,—a dessert as "copious" as it was "brilliant," his hopes revived, and once more Science was proved to be in the right. Not only did the little girl eat of everything which came within her reach, but she had herself helped to the most distant dishes. In short, she ate so much that the company began to wonder how so small a body could enclose so vast an assortment of goods. Two years later, Brillat-Savarin met her again. She had then been married just eight days, and a handsomer woman he had rarely set eyes on. Unfortunately, her husband seemed already to be making himself wretched over the compliments she received. Not long after he took her to a country-house, far away from Paris, and "society" saw her no more. One can only hope she was happy.

At another dinner-party, Brillat-Savarin, after carefully scanning the features of the Duke Decrès, Minister of Marine, who was present, pronounced his Excellency a *gourmand*. He was a short, thick-set, dark, curly-haired man, with a round face, a double chin, thick lips, and a mouth not quite so large as a church door, but still of fair proportions. B. communicated the result of his observation to the lady seated next him. "You need not tell him I said so," he added, laughing. The lady promised faithfully—and found an opportunity to tell the Duke that same evening. Next day Brillat-Savarin received a pleasant letter from his Grace, in which the latter modestly disclaimed the possession of so estimable a quality as that which his agreeable *convive* had attributed to him.

By the way, is it that we are more serious or merely less debonaire than our neighbors? Somehow, the mind refuses to picture an English Minister (say Mr. Gladstone, or the Duke of Argyll) taking the trouble to inform by letter a man whom he had never met in his life that he was not unduly fond of a good dinner. Brillat-Savarin naturally wrote back a very courteous epistle, but insisted that if the Duke was not an epicure, he was resisting the intention of Nature in his case. Not long after, all Paris was laughing over a furious quarrel between the Minister and his Cook, which had got into the papers; and Brillat-Savarin was amused to find that, though the cook had been grossly impertinent, and had even obtained the better of his master in the wordy war, he was not discharged; from which the inference was plain. The cook knew his art, and the Duke had not the courage to part with a good cook. The Duke was a *gourmand*. Q.E.D.

Brillat-Savarin's useful and kindly life came to an end almost immediately after the publication of its *magnum opus* (for the *Physiologie du Gout* is small only in size, and contains the quintessence of half a century of thought, observation, and wit). On the 21st of January, 1826, many loyal gentlemen attended a solemn Mass for the repose of the soul of Louis XVI. (beheaded on that day in the year 1793). It was celebrated in the fine old abbey church of Saint Denis, which, like all similar edifices, was extremely cold in winter. Three eminent lawyers who were present all caught colds, and were killed by exposure to that inclement January weather. They were Robert de Saint Vincent, the Advocate-General Marchangy, and "M. le Conseiller Brillat-Savarin." The last died on the 2nd of February following, deeply regretted by the many friends who knew him, and were aware of the sterling benevolence and manly honesty of his character. It would be absurd to pretend that his morality realised the ideal of Christian or even stoical perfection. But he never fell short of the world's standard of integrity, and lived a good citizen and a pleasant companion, free from all taint of hypocrisy and pretentiousness. As the world goes, this is no small praise.

It has been justly observed that he was a man of one book. He wrote, indeed, a treatise on political economy, and one or two books on archæology, but these are forgotten, while the *Physiologie du Gout* remains a French classic. It should be added that the author has not disdained to present his readers with a variety of excellent recipes, which will fully repay a practical study. One of these shall be given in conclusion, for it supplies what is to many persons, and especially to brain-workers, the most important of *desiderata*—viz. the means of obtaining a harmless stimulant. Brillat-Savarin had read that Marshal Richelieu was in the habit of chewing lozenges flavored with amber. Now the Marshal is described by Macaulay as "an old fop who passed his life from sixteen to sixty in seducing women for whom he cared not one straw," but by Frenchmen he is known as the hero "of glorious memory" who took Minorca from the English in sight of their own squadron, what time we vented our insular spleen by shooting a certain admiral, "to encourage others," as Voltaire said. Therefore, Brillat-Savarin thought that whatever the man of glorious memory did must contain a lesson for Gallic humanity. Moreover, he often felt a lassitude of mind which indisposed him to work, and made it almost impossible for him to think with vigor. Wine, as a stimulant, is suited to few persons, though Blackstone wrote his Commentaries in collaboration with a bottle of port; and coffee Brillat-Savarin found even more objectionable, for we have seen that its power over him was too great. At length he discovered that the sovereign restorative, at least for him, was a good cup of chocolate with a piece of amber in it of about the size of a broad-bean, beaten, of course, to powder, and mixed with sugar. "By means of this tonic," he says, "the action of the vital powers is facilitated, thought developes itself with ease, and I never suffer after it from the insomnia which would be the infallible consequence of a cup of black coffee." There is obviously the same danger in tea as in coffee, besides which, the one and the other are apt to injuriously affect the nervous system, if taken habitually in strong doses. —*Cornhill Magazine*.

CHARLES KINGSLEY.*

BY G. A. SIMCOX.

THE greater part of the work of the world is always carried on by people who are working well within themselves, who could do at any given moment far more than they are doing, who could very probably do very much more permanently than they are ever likely to do—at a cost which they dimly divine and are unwilling to meet. In the case of ordinary men and women who have commonplace work to do, we accept this tendency without remark, and as we decline to study its more accessible manifestations, we are naturally confused by its effects upon natures which are raised in different degrees by special gifts above the common level. In really great men like Goethe, and Milton, and Marlborough, and Wordsworth, it impresses us with a welcome sense of power held in reserve; there are others in whom it strikes us as fastidiousness, of which we do not venture to complain. We wish that Campbell, or Gray, or Leonardo da Vinci had given us more, but the work which such men do for us is so excellent in its different kinds, that we dare not bid them force their gift. When the superiority is less marked we are more exacting, at least when the possessor of the superiority tries to find a career in its cultivation. We are severe upon the wasted lives of those who have talent enough to begin some work out of the common hopefully, and not strength enough to carry them on from intention to execution without fatigue, which often impoverishes the work, and yet more often disenchant the worker. Or we insist that, up to forty or fifty at any rate, a worker whose first work was good shall continue to improve with practice; we do not reflect that the spontaneous activity of the brain, like the spontaneous activity of the muscles, begins to decline very soon after growth is complete, and that impressions are assimilated far more perfectly when they are not collected with a

view to the market. Most of those to whom this rule is applied think it hard, most of those who apply it think it necessary, though they never dream of applying it to those who are very unmistakably above themselves. But there have always been those of all degrees of greatness who have applied the rule to themselves, who have chosen to live at high pressure, though they were not unaware that it is easier and safer to live at low. Men so unlike as Raffaele, and Schiller, and Mendelssohn, and Mozart, and Dickens, and Kingsley are alike in this, that they gave all that it was in them to give, and did all that it was in them to do. We may say of some of them that their lives were not worthy of their art, even then we can hardly say that the art was marred by the life. Could Mozart have done better? Could Raffaele have done more? Pure excitements wore out Mendelssohn as fast as less pure excitements wore out these; the feverish endeavor of Charles Kingsley may have been more spiritual in aim and motive than the yet more feverish industry of Charles Dickens, it was equally deadly in its result.

We feel that his widow has chosen the right motto for her memorial of him:—

"Sleeps after toyle, port after stormy seas,
Ease after warre, death after life, does greatly please."

He said himself in his speech at the Lotus Club, in 1874:—

"One of the kind wishes expressed for me is long life. Let anything be asked for me except that. Let us live hard, work hard, go a good pace, get to our journey's end as soon as possible—then let the post-horse get his shoulder out of the collar. . . . I have lived long enough to feel, like the old post-horse, very thankful as the end draws near. . . . Long life is the last thing that I desire. It may be that, as one grows older, one acquires more and more the painful consciousness of the difference between what *ought* to be done and what *can* be done, and sits down more quietly when one gets the wrong side of fifty, to let others start up to do for us things we cannot do for ourselves. But it is the highest pleasure that a man can have who has (to his own exceeding comfort) turned down the hill

* "Charles Kingsley, his Letters and Memories of his Life." Edited by his Wife. (London: H. S. King & Co. 1876.)

at last, to believe that younger spirits will rise up after him, and catch the lamp of Truth, as in the old lamp-bearing race of Greece, out of his hand before it expires, and carry it on to the goal with swifter and more even feet."

It was only as he neared the wrong side of fifty (or the right) that he became willing to leave things which he wished done for others to do, but from the early years of a singularly happy marriage he was strangely familiar with the thought that it would be a blessed thing to have it all over. It was with him among the beauties of the Moselle when his enjoyment of them was keenest, as well as among the cares of his parish and the literary labors forced upon him by the cares of his family. One almost thinks his craving for death when life was most intense was like an ascetic's craving for pain when rapture is at its highest—best understood, so far as either is intelligible, as the reaction of nature under a perpetual strain. Few who succeed as ascetics would have been happy or useful under the conditions of ordinary life: one cannot say that of Kingsley; his good-will, his ready sympathies, his quick perception, his fearlessness would have brought him comfortable employment and earned him honorable distinction if he had been content to take life at the rate of other country parsons. It almost seems as if it might have been so if circumstances had been a little easier—if he had had a very moderate amount of private fortune, if he had come into a living with a clear income instead of having to spend borrowed money to make the house habitable, and repair in other ways the neglect of his predecessor, he might have been able to give more scope to his "favorite occupation" of "doing nothing," and to avoid to some extent what he disliked most, "work of any kind." He would still have been a notable observer, a famous fisherman, a telling preacher, a hearty friend; he would still have been vehement against injustice, or what he thought injustice; but, as he disciplined what was excessive in this vehemence he might easily have come to the conclusion to which most men come—that it is best to do one's own share of the world's work and leave other people to do theirs; he would have gained

something and lost much, and escaped much also.

However this may be, there was much in his disposition as well as in his circumstances to mark him out for a strenuous life. He said himself, writing in 1865 to Mr. Galton on his book on Hereditary Talent:—

"We are but the *disjecta membra* of a most remarkable pair of parents. Our talent, such as it is, is altogether hereditary. My father was a magnificent man in body and mind, and was said to possess every talent except that of using his talents. My mother, on the contrary, had a quite extraordinary practical and administrative power; and she combines with it, even at her advanced age (seventy-nine), my father's passion for knowledge, and the sentiment and fancy of a young girl."

His father was ordained late in life, having come to the end of his career as a Hampshire country gentleman at the age of thirty through his guardians' improvidence and his own. He went to read for orders at Cambridge, and there became acquainted with Dr. Herbert Marsh, then Margaret Professor of Divinity, whose interest in German literature he shared. In theology the elder Mr. Kingsley was rather of the school of Simeon, but perhaps we may trace Dr. Marsh's influence in the resolution with which he stood up for geology at a time when a clergyman could not do so without courage. The connection bore fruit in other ways: Mr. Kingsley's first cure was in the Fens; Dr. Marsh, when Bishop of Peterborough, made him one of his examining chaplains, and gave him one of his best livings to hold for his son, then seventeen.

Mrs. Kingsley came of a West-Indian family; her father was a man of books and science, the intimate friend of Sir Joseph Banks and the distinguished John Hunter. At the time of the panic caused in Barbadoes by the earthquake wave, and darkness which accompanied the great eruption of the Soufrière of St. Vincent, "he opened his window, found it stick, and felt upon the sill a coat of powder. 'The volcano at St. Vincent has broken out at last,' said the wise man, 'and this is the dust of it.' So he quieted his household and his negroes, and went to his scientific books."

Charles Kingsley was born at Holne Vicarage, under the brow of Dartmoor,

in 1819: he only remained there six weeks, as his father was removing to another curacy in Nottinghamshire; but his mother had enjoyed the scenery upon his account as well as her own, and he always felt himself a Devonshire man. As a child Kingsley suffered more than once from brain fever, and was moved into a haunted room at Barnack Rectory, where he heard too many ghosts ever to believe in them in later life, though his imagination was still haunted by what he had experienced or fancied. In 1864, he gave the following characteristic *rationale* of the matter to Mrs. Francis Pelham:—

"MY DEAR ALICE,—Of Button Cap—he lived in the great north room at Barnack (where I was *not* born). I knew him well. He used to walk across the room in flopping slippers, and turn over the leaves of books to find the missing deed whereof he had defrauded the orphan and the widow. He was an old rector of Barnack. Everybody heard him who chose. Nobody ever saw him; but in spite of that he wore a flowered dressing-gown, and a cap with a button on it. I never heard of any skeleton being found; and Button Cap's history had nothing to do with murder, only with avarice and cheating.

"Sometimes he turned cross and played Polter-geist, as the Germans say, rolling the barrels in the cellar about with surprising noise, which was undignified. So he was always ashamed of himself, and put them all back in their places before morning.

"I suppose he is gone now. Ghosts hate mortally a certificated national schoolmaster, and (being a vain and peevish generation) as soon as people give up believing in them, go away in a huff—or perhaps some one had been laying phosphoric paste about, and he ate thereof and ran down to the pond, and drank till he burst. He was rats.

"Your affectionate Uncle,

"C. KINGSLEY."

When he was four years old, Kingsley preached his first sermon, which his mother wrote down and showed to Bishop Marsh, who told her to keep it. Some sentences are prophetic of his later teaching. "Honesty has no chance against stealing. . . . Nobody can tell now the devil can be chained in hell. . . . If humanity, honesty, and good religion fade, we can to a certainty get them back by being good again. Religion is reading good books, doing good actions, and not telling lies and speaking evil, and not calling their brother Fool and Raca." The first poems, composed eight months later, are less remarkable, and as

a schoolboy his tastes and character were more conspicuous than his abilities. When he was eleven his parents had settled for five years at Ciovelly, after a halt of ten months at Ilfracombe: he was sent to a preparatory school at Clifton (where he saw the Bristol riots, which scared him into strong Toryism), and thence to the grammar-school at Helston, then under the Rev. Derwent Coleridge, where he became intimate with R. Cowley Powles, who contributes some interesting letters and recollections. His translations into English verse were good, he worked fitfully at classics and mathematics, geologized eagerly, and botanized with passion; he had much information, which his schoolfellows had not, and was accordingly unpopular, because, without intending to snub them, he produced the effect. Moreover, though he was strong and active, he was not expert at games of any kind; on the other hand, he bore pain wonderfully, and excelled in all feats that required nerve and daring. At the age of fifteen he composed much poetry in verse and prose, of which Mr. Powles has preserved some interesting specimens: one called *Hypotheses Hypochondriacæ*, on the death of a certain young lady, who, it appears, did not die, is in verse, and contains a good deal of observation of Devonshire landscape, and innocent Byronic sentiment, forcibly and musically expressed; the other, *Psyche*, a rhapsody, probably refers indirectly to the same occasion; *Psyche* seeks love through the world and only finds it in God, and when she is gone the world misses her. He had come now to take an interest in the love of others, if not to have a serious love of his own: his interest showed itself characteristically in eager advice to his schoolfellow; he bids him "teach her a love of nature. Stir her imagination, and excite her awe and delight by your example. . . . Teach her to love God, teach her to love nature." He had already views on art, and, as Mr. Powles reminds us, it was not the fashion for boys to have views on art forty years ago. His views were perhaps as enlightened as Shelley's; he thought Vandyke and Murillo the most exquisitely poetical of all painters, while Rubens was magnificent but terrible.

Hitherto his life had been happy, ex-

cept for the shock of his brother Herbert's death; but the change in 1836 from Clovelly to Chelsea, and from Helston to King's College, was anything but a welcome one. He found clerical society, into which his family were naturally thrown, intolerably "shoppy;" all the details of parish work were disgusting to his boyish fastidiousness and his aristocratic prejudices. He had no relaxation that suited him, except the society of one or two acquaintances, no exercise except the tramp from Chelsea to the Strand, and from the Strand to Chelsea. It is not surprising that he overworked himself in a way that he remembered as long as he lived, with perceptible injury to his health, and more serious injury to the tone of his mind.

He was well prepared when he went to Cambridge, and obtained a scholarship at Magdalene in his first year; but the curriculum was thoroughly distasteful to him at the time, though, when he came to lecture on the School of Alexandria, he had argued himself into admiration of the discipline against which he had rebelled. The reaction was not long delayed; he was his own master if he dared to be, and he had never known the fear either of man or of more than man as a motive for obedience. He was always, indeed, a dutiful son, but his respect for his father's person took the form, even in later life, of holding that his father's opinions had never given his abilities fair play. The disease of "emancipation," which few clever young men escape, unless they are very modest and their elders very wise, attacked him in its severest form. He disbelieved almost all that he had been taught, and then was distressed at not knowing what to believe. He neglected his work and gave himself up to wild sports in the Fens, which then presented much of the bleak picturesqueness that he has immortalised in his prose idyls. He was very popular, but not very sociable, as few of his contemporaries cared for such strenuous amusements, and sowed their wild oats without so much heart-searching.

On July 6, 1839, on a visit to Oxfordshire, Kingsley met his future wife, Fanny, the daughter of Pascoe Grenfell and Georgiana St. Leger, his wife. Some fifteen years afterwards he said, "That

was my real wedding day." At first this only intensified the crisis. Circumstances seemed to give the lover very little hope; in intervals of recklessness Kingsley thought of joining the prairie hunters, a scheme which he remembered when he travelled across America in 1873, when he met his brother, Dr. Kingsley (of whom, as of his other brother, we hear very little), in Colorado. But from the first, the influence of a pure and passionate attachment told. Mrs. Kingsley has naturally felt that the time has not come to tell the whole story; we have to read between the lines; and, after all, we cannot be sure how much of autobiography there is in the story of Lancelot and Argemone. The conjecture that there is something would force itself upon us, even if Mrs. Kingsley did not suggest it by comparing her husband to his own Lancelot. From some allusions to the period in his later letters, it would seem that there was a time when Lancelot was more nearly inclined to agree altogether with Argemone than Argemone knew. The nearest approach to an admission is a letter of December, 1840, where he says, "If I ever believe Christianity, it will be in that spirit in which you believe in it. There is no middle course between deism or the highest and most monarchical system of Catholicism. Between the two I waver." A letter of the next month explains his deference to her judgment:—

"How I envy, as a boy, a woman's life at the corresponding age—so free from mental control as to the subjects of thought and reading—so subjected to it as to the manner and the tone! We, on the other hand, are forced to drudge at the acquirement of confessedly obsolete and useless knowledge, of worn-out philosophies, and scientific theories long exploded—while our finer senses and our conscience are either seared by sensuality, or suffered to run riot in imagination and excitement, and at last to find every woman who has made even a moderate use of her time, far beyond us in true philosophy."

In June, 1841, he wrote of Tract 90—

"Whether wilful or self-deceived, these men are Jesuits, taking the oath to the Articles with moral reservations which allow them to explain them away in senses utterly different from those of their authors. All the worst doctrinal features of popery Mr. Newman professes to believe in."

The nearest approach to a relaxation of this harsh judgment is to be found in a

letter of 1865 to Maurice, where he says, "The Tract 90 argument was quite fair—if its author could have used it fairly."

But although he rejected the system so impetuously, it came very near to dominating him; he never lost the sense of what he owed it, or of what he had inferred from it, and it is just here that the narrative fails us. Kingsley's courage made his letters at the time the expression of his resistance, and not of the concessions which were half involuntary. The indication we get from a letter of his early married life, in which he says to his wife, "Was it not better and more poetical in my sorrow to use mortification than to behold the moon" in verse. One is reminded of Argemone sleeping upon the ground in sympathy with the distress of Lancelot. The truth of the matter we suspect is as follows. Kingsley's muscles and senses were far more vigorous than the rest of his constitution: looking only to his strength, he was fit for an athlete; looking only at his temperament, he was fitter for a monk. His brain, or his personality, as we may choose to phrase it, was steadily on the side of the robust and active element, but was never impervious to the other. Hence all who were really intimate with him were struck by the union of the most exquisite tenderness with a manliness that often seemed aggressive. Hence, too, his personal predilection for mystical writers, even when he felt bound to protest against what he thought their demoralising quietism. Hence, too, one is tempted to guess, an impulse to complete his conversion by renouncing his love, an impulse which may have been the stronger because the sense of unworthiness, which is to be found in all true lovers, was very strong in him. It is hard not to suspect some personal animosity in his reprobation of the depreciation of wedded love which for him was the one damning sin of asceticism.

Another consequence of Kingsley's constitution was extreme intellectual impatience. The importunate muscular energy which made mental application in itself a penance, became comparatively manageable by the help of tobacco, which he learned to prize at Cambridge, though we find that when he had long been a hard-working country parson,

he could not work at writing when the weather interfered with energetic exercise. But the exuberant vitality asserted itself in another way—he threw himself readily into a combative attitude and condemned before he understood. After reading ten lines of Palmer on the Church, he was sure that the book was too sophistical and dangerous for his correspondent to read until she could read it with him, and was ready to convict the citations of the "Tract writers" of bad faith on the strength of the counter-citations of Dean Goode. This, of course, was in his salad days, when he was green in judgment, and thought Salisbury Cathedral a monument of elegant soul-crushing austerity; but years after he seriously maintained that the successful activity of the clergy promised nothing for the permanence or prosperity of the Establishment, unless the Church comprehended the necessity of an alliance with Arnoldism, because, "as we who know history know," the last fifty years before the Reformation were full of just the same superficial activity and improvement, the proof being, that during those years the fashion of founding colleges of priests, instead of monasteries, came in, and that many churches were built in Somersetshire.

Kingsley's leanings to democracy seem to have come from Carlyle, whose French Revolution and Past and Present did much to decide him to take orders. Oddly enough, he was introduced to Carlyle's writings by the same influence as that which led him back to comparative orthodoxy; but one must not forget that Carlyle has done so much to rehabilitate the past, that those who wished to restore it might for a time mistake him for an ally. He influenced Kingsley on two sides: he familiarised him with the conception which he and many since have taken for an evangel, though Schiller formulated it as a *pis aller*.

"Die Welt-geschichte is das Welt-gericht."

He familiarised him, too, with the belief that every privilege had to be justified, and could not claim to be respected simply because it was there. Besides, the theory of democracy was in the air. Kingsley was impressed, like De Tocqueville, by the growing power of large masses of the proletariat and the grow-

ing disorganization of what remained of the old hierarchical system. Like De Tocqueville, he was slow to perceive that the proletariat was completely incapable of wielding the same extent of power that the chiefs of the old order had possessed, and that consequently the old directing classes would be able to retain indefinitely large powers of obstruction at any rate, and were likely to be reinforced at various points by the egotism of a *parvenu* oligarchy. Nor was it then so clear as now how small a proportion of the proletariat is capable of anything like sustained political passion, and Kingsley's allusions were more pardonable because he lived through the Chartist agitation and the Revolution of 1848 before he was thirty. There was another more personal and more honorable reason for Kingsley's illusions in the fact that he was able to make friends of uncultivated people without any painful effort of condescension, a gift which is probably becoming rarer and rarer among the cultivated, while it tends increasingly to consign its possessors to a not wholly enviable eminence as "trusted friends and advisers of the working classes." Eversley was moreover a democratic parish of "heth croppers," hereditary poachers on Windsor Forest and other preserves in the neighborhood, and surrounded by commons which helped to maintain their independence in more innocent ways.

He went there six months after taking his degree, which was better than his friends had expected. For the last year he had read steadily, and for the last six months violently; his mind had recovered its tone as a result of so much exertion conscientiously, though, as he thought at the time unprofitably, applied; and though his letters of the time are full of awestruck humility about himself, deepened by a mystical estimate of the clerical office, one is struck by the unhesitating tone in which he advises his friends on the gravest subjects often when dead tired in body or mind, or both, as he tells his correspondents frankly.

His life at Eversley at first was full of hardship; he was only curate, there were no gentry in the parish, he lived in a cottage, working hard, faring hard, chopping wood for exercise, one might

almost say for recreation, reading historical and unhistorical lives of saints and famishing for intellectual intercourse. For part of the time he had the farther trial of being cut off from all communication with his future wife, and nothing in the whole narrative of his life becomes him better than this passage in it:—all the letters to his betrothed, including the letter of farewell on the eve of a parting—which for all that either knew might last for life—are full of obstinate thanksgiving, he is so far from claiming pity that he will not even give it. With him, love is enough, for eternity will make amends for time. Nor was there anything in his faith to depreciate this life and its duties; his very ground for believing that the law of perfection was binding here was his immovable confidence in its transcendental fulfilment there, and although his love to the law doubtless sustained the confidence, the confidence deepened the love; it is a common experience which deserves more attention than it has received, that most men abandon their wishes when the beliefs which those wishes have suggested appear to break down.

As the period of separation to which Kingsley had assented drew to a close, the prospects of the lovers brightened. He received the offer of a more desirable curacy, and their engagement was sanctioned. Before he went to Pimperne, the rector of Eversley had absconded, and the parishioners wisely exerted themselves to secure Kingsley as his successor. His brief stay at Pimperne brought him into contact with S. G. O., who was deep in statistics and abuses, and the condition of the Dorsetshire farm-laborer, not cheerful now, was more than disheartening then, as Kingsley wrote: "What is the use of my talking to hungry paupers about heaven? Sir, as my clerk said to me yesterday; 'there is a weight on their hearts, and they care for no hope and no change, for they know they can be no worse off than they are.'" At Eversley the task was less overwhelming. "He found a kindly people, civil and grateful for notice, and as yet wholly uninjured by indiscriminate almsgiving." His regular household-visiting conquered them. "If a man or woman were suffering or dying, he would go to them five or six times a

day—and night as well as day—for his own heart's sake as well as for their soul's sake." His only recreation was fishing; he would not shoot because the population were poachers; he could not afford to hunt, though latterly he sometimes followed the hounds on an old hack, but from the beginning his knowledge and love of horses and dogs won the hearts of the stablemen and whippers-in of Sir John Cope's hounds. "When the first confirmation after his induction was given out in church, and he invited all who wished to be confirmed to come down to the rectory for weekly instruction, the stud groom, a respectable man of five-and-thirty, was among the first to come, bringing a message from the whips and stablemen to say that they had all been confirmed once, but if Mr. Kingsley wished it they would all be happy to come again."

While Kingsley was bringing Eversley into some approach to order, it was daily becoming more apparent how far England was from being safe and orderly. It is very difficult to realise how menacing the clouds seemed which gathered and passed without bursting, but thirty or forty years ago, nearly all thoughtful observers seem to have been convinced that heroic measures of some kind, something like a national reformation, a conversion to purified feudalism—or Christian socialism, or socialism without Christianity, or strict Benthamism and Malthusianism—were indispensable if England was to be saved from final ruinous decay, or at any rate from a bloody revolution. There has been no national conversion, no general adoption of heroic remedies. The only radical change has been the adoption of free trade in corn, and England at the present moment is as safe and prosperous as any nation has ever been, and may look forward reasonably and soberly to going on from good to better by the diffusion of an interest daily less fitful, because more intelligent in the application of very unheroic remedies. This interest is still kept up by the devotion of a minority, very far from unheroic, who impress upon the majority the importance of always doing a little in the right direction. At the beginning of the movement it was natural that this minority should

have their whole minds set upon the need for fundamental change, and should gather into little groups with the object of initiating the application of heroic remedies on a small scale, not having yet learnt from experience the beneficent effect of unheroic remedies largely applied.

One of these groups gathered round the late Mr. Maurice, and Kingsley was for some ten years one of its most active and influential members, more influential and more active perhaps than the titular chief, for we are inclined to think that Mr. Maurice's part in the battle (a very real part, since it sustained his followers) was to lift up his hands on the mountain. For Kingsley himself these years were the most fruitful of his life, the years of his most decisive activity as a parson and politician, as an author and as a director of souls. They were years also of conflict which astonishes us by its violence. The crust of prejudice or principle which still held the old order together was very thin, as is shown by the ease with which it has yielded to the dissolvent influences of the last ten years; but those who thirty years ago were struck with the menacing instability of a fabric already undermined found the shell still cruelly hard. It was this sense of isolation, in the midst of a crooked and perverse generation, which made Kingsley take the *nom-de-plume* of Parson Lot in his writings addressed to working-men; he felt himself a solitary ineffectual preacher of repentance in a city which deserved to be rained upon with fire and brimstone. The tone of his addresses one thinks ought even then to have given little offence to Conservatives. The main burden of his teaching was that working-men must emancipate themselves from the tyranny of their own vices before they could be emancipated from the tyranny of bad social arrangements; that they must cultivate the higher elements of a common humanity in themselves before they could obtain their share in the heritage of national civilisation. He consistently discouraged every approach to illegality or violence, and on the memorable 10th of April he and his associates worked as hard as the Duke of Wellington to keep the peace. But the great body of the respectable and orthodox regarded it as a crime in a

beneficed clergyman to enter into amicable intercourse for any purpose whatever with revolutionists, especially when he admitted that the revolutionists had grievances, and stated those grievances with as much emphasis as if he had been prepared to join in revolutionary action. The rôle of Mentor is always thankless, and Kingsley had more than his share of its trials and less than his share of its rewards and consolations, such as they are. From first to last, too, he felt for his clients rather than with them; their wrongs made his blood boil, but their aspirations hardly made his heart beat higher. There is little in his letters, or the recollections of his associates, to show that he admired the working-men leaders with whom he came in contact; there is a good deal to deepen the impression made by Alton Locke, that he was often struck by their absurd pretentiousness and unreality. An agitation in which members of different classes meet is generally a happy hunting-ground for some of the most worthless members of both, and Kingsley had, as Mr. Hughes tells us, ail the fastidiousness of an aristocrat, and disliked all wilful eccentricity. In everyday life he appreciated the comfort of undress quite sufficiently, but it shocked him to be associated with men, one of whom was capable of attending an important deputation in plush gloves. Then, too, if the leaders, with their theories of popular sovereignty, went beyond him, he went beyond the mass of the rank and file in the extent of the social reconstruction he desired. To his mind the principles of association and competition stood in sharp contrast, with nothing very solid or visible between. The ideal of English artisans has always been "a fair day's wages for a fair day's work;" not to get rid of masters, but to agree with them on customary terms, subject to equitable revision from time to time. But Kingsley's ideal was that working men should unite to be their own masters. The establishment of such an association is the conclusion to which he works up in his famous pamphlet on the distress in the tailoring trade. When the association failed (partly by bad workmanship, and partly, no doubt, because, when the glut of cheap Irish labor ceased, the ordinary trade got back to a

comparatively wholesome state), and when other associations failed too, Kingsley saw nothing for the working classes to do but to "sit and consider themselves." In many respects he was twenty or thirty years ahead of his contemporaries, but he agreed with the economists in seeing only the failures of trades' unions, and the waste of unsuccessful contests, and in leaving out of sight the promise of future victory and the barriers already raised against oppression.

But no divergence of views and no fastidiousness were allowed to interfere with his labors for the good cause: by the end of 1848 he had worked himself to a standstill. He had published the *Saint's Tragedy*, and written *Yeast* in "Fraser," and worked hard all the time at Eversley and among the Chartists, and at the Queen's College for working men, to say nothing of some vehement and elaborate letters of spiritual advice.

While resting at Ilfracombe the idea of *Alton Locke* came to him. It developed itself with so much freshness and clearness, that he accepted it as an inspiration from above, and prayed against spoiling it. It is an advance upon *Yeast* in every way; one does not feel, as in *Yeast*, that the story is arranged simply to give the hero occasions for talking trenchantly of matters which he does not understand; and it is an artistic gain that the writer is idealising his observation rather than his experience. Both being written at a red heat, are far superior to his first work, *The Tragedy of St. Elisabeth*, which represents the outcome of years of reading and meditation. Ever since leaving Cambridge he had contemplated writing her life, and that of St. Theresa as a pendant, to exhibit, as he supposed, the twofold aspect of the ascetic ideal upon the practical and the contemplative side. The half of the scheme that was executed shows that a poem with a purpose ought not to be too elaborate. The historical appreciation is falsified throughout; it was not Conrad, but the Democrats whom he burnt, that were Manichees; St. Elisabeth did not find Conrad's yoke heavy because it came between her and her home, but because she was naturally unmethodical, and took a childlike pleasure in giving. Montalembert believed in her far more

implicitly than Kingsley, but he lets us see far more clearly that if she had not been a saint she would have been a goose.

Though *Yeast* was written first, it did not appear as a book till 1851, and in the interval he had formed and discarded plans for a second and third parts. In one, Luke, Claude, and Lancelot were to work out the ecclesiastical, pagan, and naturalist tendencies in art, and the result of the last experiment was to be Tregarva's conversion from Puritanism to an appreciation of art among other good gifts. In the other, Argemone was to undertake the regeneration of Whitefoord, and to fail until guided by Lancelot into the true gospel of the time. When *Yeast* did appear, it was a signal for a storm: the purpose of the book had been deliberately left to the reflection of the reader, and though this, when discovered, was edifying, or at worst unobjectionable, the temper and method of the book must have seemed objectionable enough; besides which, the doctrines that moral and spiritual life has a physiological basis, and that good comes out of evil which practically would not come without, never easy of digestion, appeared doubly offensive in an author who had nothing positive to suggest, and proclaimed the religious and intellectual bankruptcy of the existing system. The *Guardian's* review was of a kind which the author was almost justified in meeting with the compendious retort of Father Valerian "Mentiris impudentissime."

There was a longer interval before the appearance of *Hypatia*, which was undertaken partly as a business speculation, like all the writings which followed it. After completing the first draft of *Yeast*, he had more than half agreed to give up novel-writing: he was busy without it, and though what he called his "blessed habit of intensity" doubled his working power, it was no guarantee against exhaustion. But silence was a real difficulty to a man whose convictions were energetic and singular, and *Alton Locke* had brought money—which was wanted. He decided to take a curate to have time for writing, and a pupil or pupils in order to find funds to pay a curate. *Hypatia* was written *con amore*; in one of his letters while the work was in progress, he calls her "a

little darling," which is a stronger sign of paternal affection than he bestowed on either of the later novels which have the mellowness of over-ripe fruit, or even upon *The Water Babies*, his last great and spontaneous success.

Before the publication of *Hypatia*, Kingsley was mainly occupied with sanitary reform, a subject forced upon him by the epidemic of cholera in 1849, by the unhealthy state of his own parish, and by his discoveries in the worst parts of London, and also by the perception that the social problem was too large to attack as a whole, and that in pressing for the necessity of pure air and pure water, the risk of premature and doubtful theories was less than in dealing with political or economical problems. Even in *Alton Locke* he had expressed a wish that the working classes would adjourn their political aspirations altogether in favor of social reforms, and in October, 1850, we find him writing to Maurice:—

"All my old roots are tearing up one by one; and though I keep a gallant 'front' before the Charlotte Street people (Council of Association), little they know of the struggles within me, the laziness, the terror. Pray for me; I could lie down and cry sometimes. A poor fool of a fellow, and yet feeling thrust upon all sorts of great and unspeakable paths, instead of being left in peace to classify butterflies and catch trout."

The same month he wrote to Mr. J. M. Ludlow about the Christian Socialist, whose epitaph he was to write in June 9, 1852, with wonderful eagerness and hopefulness urging that the contributors should not write down to the working classes in any way, but pour out their whole souls in a truly democratic spirit, treating their readers as ripe for the highest teaching that it was well to attempt to lay before any section of the nation. While he grudged no efforts and no risks, Kingsley was always on his guard against the prudery of equality, in which he recognised another disguise of his lifelong enemy, the spirit of asceticism. He resented theories which called men to give up beer and tobacco, or meat, as he resented the theory which called men to give up marriage. He would have agreed with Robespierre that atheism was an aristocratic vice, and he held that asceticism was aristocratic too. The ascetic claims for himself a privileged position in the next life, and is often at once the

parasite and the patron of all who have reached a privileged position in this. Neo-Platonic spiritualism was of course aristocratic too—it crushed our common nature in the interests of a special culture only accessible to the few, and from this point of view the writer was justified in regarding *Hypatia* as a democratic book, though to the uninitiated reader the democratic tendency is not very apparent.

Hypatia is a brilliant attempt to apprehend imaginatively the life of a period which could not yet be apprehended scientifically; its success marks something of a turning-point in Kingsley's career: hitherto his reputation had been that of a party chief; *Hypatia* gave him reputation of a wider and more peaceful kind, at a time when the struggle in which he had been engaged was dying away, partly by the desertion of the combatants and partly by the abatement of the national distress. Henceforward, we may say that to reconcile the Church and Democracy was only a secondary object with him, his primary object was to reconcile science and the creeds. From the beginning the fear of materialism had haunted him, and he had already endeavored to meet in *Phaeton* the floating doubts in which he rightly discerned the vanguard of a systematic assault upon all that has hitherto been recognised as religion. He has the merit of having anticipated the line of defence which apologists are still endeavoring to fortify: he insisted upon the dynamic and spiritual element in nature, feeling sure that most men, if they can be persuaded to dwell upon it, will find it easiest to conceive in the traditional anthropomorphic way. He also was one of the earliest to adopt a sophism which is rapidly getting accredited as a truism, that we ought to admire the beneficence of an order carried on under stable conditions, which we discover by the bad effects of neglecting them. *Hypatia*, like most of his early efforts, was followed by an illness which necessitated a prolonged residence in Devonshire, to which we owe *Glaucus, or the Wonders of the Shore*, which, oddly enough, is not enumerated in the chronological list of his writings placed at the end of the second volume of the memoirs.

In other ways the years from 1852 to
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1859 were happy years for Kingsley. When the strain of the struggle for social reform was lightened, he overflowed in boyish gaiety to his fellow-workers, especially to Mr. Hughes. All the letters and verses connected with their fishing expedition to Snowdon in 1856 are among the very best things that Kingsley either did or inspired; to be appreciated as they deserve they should be read at length—the riotous animal spirits let loose are contagious; but if one tries to select samples they are apt to be as insipid as bubbles if one could catch them from an effervescing spring.

By January, 1857, Kingsley had completed *Westward Ho!* and *Two Years Ago*, the two most popular of his novels, and was able for the first time for three years to pass the winter at home. He began to be sought by persons of maturer years and better-fixed position than the young men who having shared the perplexities expressed in *Yeast* and *Allan Locke*, had found it natural to carry their troubles to a writer who had dared to avow the like.

The tragedy of the Indian Mutiny was a great shock to one whose happiness was so dependent on confidence in the order of the universe, and he missed one great pleasure in 1857, because when his friends proposed to him to go to the Art-Treasures Exhibition at Manchester, he could not resolve to tear himself away from a sick parishioner who would have missed his daily visits. His health suffered again from confinement and over-exertion, and was not restored by a tour in Yorkshire which he undertook in view of a novel on the "Pilgrimage of Grace." The novel was partly written, but abandoned under the impression that it was degenerating into twaddle. He resolved to rest altogether, and to seek a new direction for his activity. When asked his opinion on Mansel's Bampton Lectures, he replied that he had not read them and hardly knew whether he should; he had made up his mind on the subject and did not want to be disturbed, and thought that Mansel appeared to be making the mistake of regarding the divine action as conditioned by time.*

* It was characteristic of Kingsley to feel that the high value he put upon metaphysical distinctions dispensed him from giving much thought to metaphysics.

For himself he was going to repair his resources and then renew the attack on the side of physical science.

The course of events seconded this resolution: no one was more sensitive than Kingsley to the great changes produced in the intellectual atmosphere by the appearance within a couple of years of *Essays and Reviews*, Darwin's *Origin of Species*, and Mill's *Essay on Liberty*. They did not affect him to the same extent or in the same direction. Mill's essay simply filled him with unreserved, unreflecting, perhaps unfruitful sympathy; Darwin's great work moved him far more powerfully: he was more convinced than ever that natural science was the subject of the day; he accepted Mr. Darwin's method and the great body of his facts with one characteristic reserve. He had no objection to the principle of evolution, but he could not apply it without precaution to ourselves; he thought it of the two more likely that existing anthropoid apes are degenerate men, than that men were the perfected descendants of extinct anthropoid apes. When the controversy between Huxley and Owen about the hippocampus minor was at its height, Kingsley attended the British Association and produced an amusing squib, which Mrs. Kingsley has done well to reprint, in which he calls Lord Dundreary of all people to pronounce judgment upon the knotty point. He could not bring himself to enter into such questions seriously; the excitement about them only convinced him the more of the value of the arcanum which Cardinal Manning and Mr. St. George Mivart are so fond of pressing on an ungrateful world—the old Greek doctrine that the different kinds of bodies are constituted by different kinds of souls. A conviction of this kind is obviously too deep to be affected by ordinary arguments or discoveries of detail; on these, too, Kingsley felt inclined to form opinions of his own, and, considering how eagerly he followed the course of investigation, one cannot accuse him of presumption for conjecturing *inter alia* that "mimicry" among butterflies might be due to hybridism, especially as he was always ready to admit upon competent authority that the facts were against him, with the ready saving clause that they

were much more wonderful, than his own theory.

If the great impulse which Mr. Darwin gave to popular interest in natural science carried Kingsley forward in a direction of his own, the great shock given to prejudice by the publication of *Essays and Reviews* carried him rather back. The mere fact that others had gone beyond him was enough alone to give him rank as a moderate. Moreover he sincerely disapproved of the boldness of the essayists; he held that, whatever they might assert, they were responsible for each other. He wished the book had never been published; he wished that, being published, it had been let alone severely. It is true that Mr. Maurice pained and alarmed him by accusing him of rationalising because he was ready to admit mistakes in the Bible if proved, but he was very reluctant to look out for them. He described his attitude very naively in a letter, thanking the present Dean of Westminster for his lectures on the Jewish Church.

"I have dared to bid my people relinquish biblical criticism to those who have time for it, and to say of it with me, as Abraham of the planets, 'Oh! my people, I am clear of all these things; I turn myself to Him who made heaven and earth.'"

Meanwhile official recognition and promotion had come. He had been made a Fellow of the Linnæan and Geographical Societies, an honor which he valued very highly; he had been appointed a Queen's Chaplain; he had made the acquaintance of the late Prince Consort, to whom he attached himself with instinctive loyalty; he had lectured to enthusiastic classes of ladies upon sanitary reform; he had been appointed Professor of Modern History at Cambridge, and had a large class of undergraduates, and a special class, including the Prince of Wales. He accepted his Professorship in the hope of making himself independent of his income from literature; some may think that his success as professor was a severer satire upon the university than anything in *Alton Locke*. The only course of lectures which he ever published is written in a fearful and wonderful dialect, and contains little or nothing beyond vague vivid amplifica-

tion of elementary facts; but his lectures were crowded, and a fair proportion of his hearers were induced to study the best original authorities on his subjects.

Within a year of his appointment he published a revised edition of *Allon Locke* with a preface which may be described as a protest against his own conversion to conservatism: he exaggerated the change which had taken place in the world because he underrated the change in himself. He had come to hold that a democracy required the influences of an hereditary monarchy and aristocracy, and of a church, and if possible an established church. He regretted that the relation of landlord and tenant could not be permanently settled upon an hereditary semi-feudal basis; he convinced himself that it was hopeless to dream of the reclamation of the comparatively fertile wastes of England by peasant squatters. His attitude during the American war is noticeable. He insisted that the distress in Lancashire was caused by over-speculation, quite as much as by the cotton famine, and pointed out that a national subscription in aid of Lancashire poor-rates was rather unreasonable, considering that poor-rates had long been much heavier in Hampshire than in Lancashire at the time the subscription was called for, and that Hampshire, with all her faults, had never asked for a national subscription to save her from the consequences of her own mismanagement. When the Freedmen's Aid Fund was started after the war, he doubted whether a fund was wanted, and did not doubt at all that whatever was wanted ought to be raised in America, considering what West Indian emancipation (by which he personally had been a heavy loser) had cost England. No personal motive is needed to explain his zeal on behalf of Mr. Eyre; it was quite of a piece with his enthusiasm for Rajah Brooke; he judged both upon the same principles, though most readers will think that in Mr. Eyre's case it was more than doubtful if the principles applied.

Much of his youthful radicalism persisted and even grew. In the wet summer of 1860 he preached a famous sermon, which edified his farmers and shocked the clergy, to explain, in the first place, that a wet season coming after three dry ones probably does more good than

harm; and in the second place, that pious people ought to be very much shocked at the thought that it is possible for our intensest wishes to act in some swift untraceable way upon the weather (which certainly acts swiftly and untraceably upon our wishes), because this would involve the dislocation of the whole order of the universe, which it is assumed can only be altered for the worse. One feels he had travelled far since he wrote in 1843, "Never let us get into the common trick of calling unbelief resignation, of asking, and then because we have not faith to believe, putting in a 'Thy will be done' at the end." He was more consistent in interesting himself in Mr. Mill's election for Westminster, which led to a correspondence in which Mr. Mill was always very deferential, and also to a share in the agitation for women's rights. From the suffrage agitation he soon withdrew, upon the ordinary ground that the best women were against it, and he had thought out, perhaps not unaided, the reasons for which the best women were against it: they all appear to be corollaries from the fact that the agitation has interested those women most in whom secondary sexual characteristics form the smallest element in their nature. But he still urged the medical education of women the more because he had a strong, if not, an exaggerated, sense of the importance of all that depends upon sex, and was therefore anxious that people of both sexes should be in a position to study it practically and scientifically.

His course upon this question exemplifies a tendency which grows sooner or later upon most active men, and grew early upon him, the tendency to discard coherent schemes and concentrate one's interest upon a few points where activity, or at least impulse, can still play unimpeded. His piety, one might almost say, gathered itself up into stoicism, as his socialism had gathered itself up into zeal for sanitary work, as his intellectual activity had gathered itself up into zeal for promoting knowledge of natural history. The last was perhaps his chief source of happiness in a period which does not seem to have been very happy. The success of the Wellington College Museum, and

of the botanical class at Chester, was very sweet to him; but many things, we gather, had lost their savor.

A man cannot enjoy a canonry very much when he takes it as Kingsley took his, both at Chester and at Westminster, as a matter of duty to his children, and a relief from literary task work. There were tangible things, too, to vex him, such as the enclosure of Eversley Common, which spoiled the beauty of the parish, and interfered with the comfort of the poor; the successful opposition to the proposal to make him a D.C.L. at Oxford, on the ground of the crudities and nudities of Hypatia; and, worse still, his controversy with Dr. Newman, in which, as Mrs. Kingsley truly points out, his defeat was the more calamitous because of the generous impulse which made him anxious to withdraw as much as he could of a charge—which he did not see to be unfounded. Worse than all, it may be, were the beginnings of that growing sense of emptiness within, which so often comes as the sphere of outward activity widens. The letters from America are cold and meagre compared with the letters from the West Indies, as those are meagre compared with the letters from the South of France in 1865, to say nothing of the letters from the Rhine in 1851. One comes upon phrases like this:—"As I ride, I jog myself and say, 'You stupid fellow, wake up. Do you see that? and that? Do you know where you are?' and my other self answers, 'Don't bother. I have seen so much, I can't take in any more; and I don't care about it all.'" "I longed to get here, I have been more than satisfied with being here, and now I long to get back again." And this from St. Louis: "I wish already that our heads were homeward, and that we had done the great tour, and had it not to do."

There are many joyous phrases still; the bright bold spirit still turned gallantly to the sunshine. Once, at least, we get a flash of pathetically pure enjoyment, as in the lines on the 'Delectable Day,' put into his wife's hands on November 6th, 1872, and even this has a sad close:—

"Ah, God! a poor soul can but thank thee
For such a delectable day,
Though the prig, the fool, and the swindler,
To-morrow again have their way."

The end came before the sense that

the days of pilgrimage were few and evil had become habitual. He never regained his strength after a sharp illness in Colorado. When he went up to Westminster in September, a severe attack of congestion of the liver shook him terribly. After preaching on Advent Sunday he caught cold, but went down in high spirits with his wife to Eversley; but the journey tried her so much that she was given over, and then, "My own death-warrant was signed," he said. He sustained and comforted her; he became reckless of himself; his cough turned to bronchitis, and then to pneumonia. He had been warned that his recovery depended on the same temperature being kept up in his room, and on his never leaving it. But one day he leapt out of bed, came into his wife's room for a few moments, and, taking her hand in his, he said, "This is heaven; don't speak." . . . They never met again. When told that another move would be fatal, he replied, "We have said all to each other; we have made up our accounts," and often repeated, "It is all right, all as it should be." For a few days a correspondence was kept up in pencil; it became, in his own words, "too tantalising, too painful," and ceased. For his children's sake he still fought for life; he astonished the doctors by the brilliant way in which he described his symptoms, and his nurse by his vivid reminiscences of the West Indies, the Rocky Mountains, and California, scenes which had hardly stirred his imagination at the time. His last words were prayer. ". . . Most worthy Judge Eternal, suffer us not for any pains of death to fall from Thee." After that he lay quite still for six hours, and passed so silently that the watchers could not mark the end.

One does not ask whether it is worth while that a plant should spring up and run to seed and die, or whether it is worth while that any one of the multitude of men should be born and married and buried with or without consciousness or desire, each lives the life of its kind, and when we have said this, we have said enough. We, too, live without our choice, how to live is for us to choose; and so when a man dies like Kingsley, worn out by a constant struggle for ideal ends, carried on at a cost we hardly knew, it is natural to ask if he chose well, if the

achievement repaid the endeavors. In many ways it did. It is the common lot to enter life weak, greedy, ignorant, and to get listless and distracted and irritable by the way; it is beyond the common lot to leave it gentle, diligent, resolute, pure. It is rarer still to keep the sanctities of home, great and small, flawless and undimmed for over thirty years, to trust them as eternal and to cherish them as if every hour were the last, to be a lover through all the years of marriage, and to govern children without fear, and, hardest of all in these restless times, to make servants feel themselves members of the family. And Kingsley was almost as successful in ruling his parish as in ruling his heart and his home. It is true that seven public-houses in a number of scattered hamlets were too much for his working-men's club; but he left his people civilised and with awakened intelligence, and, if that be worth anything, "every man-jack of them church-goers." If he missed a ploughman at church, he would stride across the fields next day, and tell him "that his wife did not want him in bed all Sunday morning, and that he ought to get up and leave her the house clear, and then stay at home after dinner and mind the children, and let her go out." His work in natural history was, within its limits, entirely successful: he described himself as a camp-follower of the army of science, and he said truly that camp-followers may do good service as scouts and foragers along the line of march determined by the general. The facts of nature are so complex, and the theories in process of establishment so abstract, that a few doubtful conjectures detract little from the merit of a keen observer and picturesque writer, who will fill up for one or two neighborhoods the outlines which the masters of science have drawn. He did much to make natural history attractive, even more perhaps to make well-disposed people think that they ought to find it so. The same remark applies to his sanitary work. He recognised one great difficulty in the way of sanitary reform, in the political power of the class who own unhealthy houses in small lots; he did not recognise the greater difficulty which lies in the general belief that to act upon such sanitary knowledge as exists is worth some care and trouble, but not much. How-

ever, he inspired many pious souls with a conviction that popular apathy on the subject was sinful.

But those things in which Kingsley succeeded were not the things which made his reputation, though some of them served to extend it. He made his reputation as a militant man of letters, fighting for certain social and religious beliefs, and his success must be finally gauged by the worth of his literary work, and of the ideas by which it was inspired. It is certain that ideas were more to Kingsley than to most of us; they supplied the support which he needed in his generous efforts, as society supplies the support which is needed for ordinary industry. The pathetic part of the problem is that the ideas which were the root of Kingsley's life were as far from being clear and stable as the ideas which are the fading flowers of the lives of common men. Upon the social side he attained, if not to an adequate expression, at least to a coherent doctrine. He set out with a keen appreciation of simplicity of life, of the worth of its common permanent elements, of the instability of a society most of whose members have no conscious share in its highest interests—all which he symbolized under the name democracy. He supplemented this perception without confusing it, when he came to realise that inherited station intelligently accepted is one of the best titles to authority—which will always be indispensable. The course of his political thought made Kingsley more conservative and less eager; the course of his religious thought made him more conservative and less confident; his trinitarian speculations faded away, though his trinitarian creed remained. As he grew older he preached positivism in observation, and optimism in feeling, more and more in an arbitrary way, with less and less pretence that the combination supplied a reasonable explanation of facts. Yet his theology is not worthless. He was one of the first to note the fatal tendency of an old creed to become a *terminus ad quem* instead of a *terminus a quo*, and to urge the fruitful method of confronting religious classics directly with the broad permanent facts of human experience, and the working hypotheses of virtuous lives.

Of his literary work we can speak with

less hesitation. With little subtlety of insight or feeling, with too much tendency to boisterous edification, he was still a most admirable descriptive writer. As a poet, it appears, he took himself too seriously; *Santa Maura* we see now was written with more emotion than it will be read with. The *Three Fishers* will probably live; it is too soon to guess

whether the *Bad Squire* and the *Buccaneer* will follow the *Corn-Law Rhymes* to a premature grave. *Andromeda* has most of the merits of a Broad Church tract and an Alexandrian heroic idyll. His mantle as a novelist has fallen upon writers so unlike him as the author of *Guy Livingstone*, *Ouida*, and Miss Broughton.—*Fortnightly Review*.

CONDITION OF THE LARGER PLANETS.

BY RICHARD A. PROCTOR, F.R.A.S.

M. VOGEL's recent researches into the spectra of the planets are regarded by him as affording evidence unfavorable to the opinion that the planets Jupiter and Saturn are still so intensely hot as to shine in some degree with inherent light. Although it is not at all necessary for the general theory which I have advocated respecting the condition of the larger planets that any portion of their lustre should be regarded as inherent, yet as Vogel's conclusion does bear to some degree on one of the arguments which have been urged in favor of this theory, the opportunity seems convenient for summing up these arguments and discussing briefly the considerations on which M. Vogel bases his objection.

I would remark at the outset that I do not by any means share the opinion of some who, in dealing with this question, and other questions of a like nature, have said that it matters very little what theory is adopted so that it is a convenient working hypothesis, a string, so to speak, on which to thread the observations. It will be found that this method of viewing matters is never expressed except by persons who have fallen into the habit of accumulating observations without reasoning upon them,—in fact, without utilising them. Observation is with them not a means but an end. It seems to me, or rather I may speak more confidently and say that the whole history of science proves, that the real value of observation and experiment lies not in themselves, but in what may be deduced from them. They are the raw material whence scientific knowledge is to be manufactured. It is not the object of a theory to afford a convenient means of classifying observations and also to

suggest occasion for making them, but to educe their real significance; and the sole reasonable object of observations is to suggest the true theory and to afford the means of testing and rejecting false ones. To assert that it matters little what theory is suggested so long as it affords a convenient means of classifying observations, is as absurd in reality as it would be to assert that it matters very little in what manufacture raw materials of a particular kind are employed, so that the manufacture affords a ready means of sorting them away and making room for fresh stores of them. The object of manufacture is to make articles which shall have real value, and raw materials are solely of use in so far as they can be employed in the manufacture of articles of such a nature. In like manner the object of theorizing or reasoning is to discover actual truths, and observations are only useful in so far as they enable us to discover such truths. The mere observer who argues that observation and not reasoning is real science, may be compared to an organ-blower who should argue that his work, not that of the organist, constituted real music. The organist cannot play without wind, the manufacturer cannot get on without raw materials, and in like manner Kepler would never have established his laws without the observations collected by Tycho Brahé, nor would Newton have discovered the law of gravity without the raw material collected by Flamsteed; but as it is important in organ music that the wind be exhausted in melody not in mere noise, and important in manufacture that the raw material be employed to make useful not useless articles, so it

is and has been a matter of considerable importance whether observations have been idly worked up in false systems like those of Ptolemy or Descartes, or wisely used to ascertain the truth, as by Copernicus, Kepler, or Newton.

The theory which is now to be considered is this, that the planets Jupiter and Saturn are still in a state of intense heat, being at a much earlier stage of planetary development than our earth or those four companion orbs, Mercury, Venus, Mars, and the moon (in one sense more specially a companion than the others) which have been called the terrestrial planets.

At the outset it may be well to consider the evidence for the only other theory which has been advanced on the subject—the theory commonly accepted with apparently as little question as though it had been the result of long and profound investigation, had been tested in every possible way, had been weighed and not found wanting by all the ablest astronomers the world has known. This is the theory that Jupiter and Saturn are bodies in the same condition as our earth.

It is not easy to find any reasoning whatever bearing upon this theory. It would seem almost that so soon as Copernicus had shown that the planets do not travel round the earth as a centre, but the earth with the planets travel around the sun, the conclusion was at once adopted that the earth and the planets are of necessity bodies of the same nature; and that as no one was at the pains to question this doctrine, it became gradually regarded as one that had been established by demonstrative evidence. The few instances of anything like reasoning which I have been able to find scattered here and there in books of astronomy amount to what follows:—First, because Jupiter and Saturn are planets, and the earth is a planet, therefore those planets are like the earth. (This argument is open to the objection that it begs the question, which is, Whether other planets resemble the earth.) Jupiter and Saturn are globes like the earth (also like the sun and moon). They rotate on their axes, and therefore if they are inhabited worlds like the earth, they have day and night, and in that respect are like the earth. They

circle around the sun, and thus if they are worlds like the earth, they are like the earth in having a year; also in having seasons, since their axes are not perpendicular to the planes in which they travel. It would be absurd to suppose that globes so magnificent were made for no special purpose, but we can conceive no special purpose they can subserve except to be the abodes of life; therefore they are worlds like our earth (though the sun, constructed on a still more magnificent scale, is certainly not such a world, or the abode of life). Their moons are manifestly intended to make up to them for their remoteness from the sun (only, when we calculate how much light these moons reflect to their primaries we find that they supply but a small fraction of the amount we receive from our moon). The rings of Saturn were manifestly intended for the benefit of Saturn's inhabitants (though they only reflect light to the summer hemisphere of the planet, and besides turning their darkened side to the other hemisphere, cut off the whole of the sun's light for many months, in some cases for several of our years, in succession). The belts on Jupiter and Saturn may be likened again to our trade wind zones, to which, however, they bear not the remotest resemblance, whether we consider their condition at any given time, or the rapid changes they undergo from time to time. In fine the arguments used by the few writers who have condescended to present even a show of reasoning in favor of the theory that Jupiter and Saturn resemble our earth in condition, amount practically to this—that, assuming all planets to be generally similar, Jupiter and Saturn are like our earth in general respects, in which case they also resemble her in several details.

I do not consider it necessary to discuss Whewell's theory that Jupiter and Saturn are intensely cold planets, because it is professedly based on the theory that they are formed of such terrestrial elements as would, if in the same condition as upon the earth, have the observed density of Jupiter and Saturn, and that these substances, being further removed from the sun, are correspondingly refrigerated. There is not a line of direct reasoning, either *a priori* or *a posteriori*, in Whewell's chapters on the

larger planets—only reasoning which depends on the assumptions which had been made by those whom Whewell proposed to controvert. In fact his theory may be regarded, and was probably regarded by himself, as merely a *reductio ad absurdum* of the unreasoning faith of those who had long held unchallenged the belief in the habitability of all the planets.

I proceed to indicate the leading arguments for the theory that Jupiter and Saturn are still intensely hot, noting first that I do not propose to discuss the details of the various arguments* (which I have already done elsewhere), and secondly that the arguments are not dependent one upon the other, but severally independent, so that if any seem weaker than the rest, the conclusion is not on that account invalidated, but the weight of evidence only *pro tanto* diminished. It is important to notice this, because many who, in examining a series of arguments, recognize, or suppose they recognize, some weakness in the evidence of one or other argument, are apt to infer that the conclusion is to the same degree invalidated as it would be if the arguments were dependent, and therefore each one essential to the establishment of the conclusion.

The first argument for the theory is that derived from the now accepted hypothesis of the growth or development of the solar system. It is rendered to all intents and purposes certain, as well from the evidence of the earth's crust, as from that given by the movements of the sun, planets, asteroids, and satellites, that the solar system was developed from a former nebulous condition. The process of development may have been that conceived by Laplace in his nebular hypothesis, which may be described as the contraction theory, or that recently suggested by meteoric discoveries, which may be called the accretion theory, or, far more probably, the solar system was formed by combined process of contraction and accretion. But in any case the planets as severally formed

were intensely heated, partly vaporous, partly liquid bodies, the larger being the more heated. It is no longer supposed, as in Laplace's time was the case, that the outermost planets were fashioned first. They may have begun to be formed first—this, indeed, is altogether probable—but the vastness of their bulk suggests that they went on gathering in matter and contracting (forming in the process their systems of moons) long after such small planets as Mars or Mercury, though begun much earlier, had gathered in their entire substance. It seems indeed not at all improbable that neither Jupiter nor Saturn have quite passed through even the first stage of planetary development, the ring-system of Saturn being suggestive of matter as yet not completely worked-up, so to speak, in that planet's system. But whatever uncertainty rests on this question there is none as to the original intense heat of those larger planets. They must have been far hotter when first formed than was our earth at the corresponding stage of her development. Nor is it at all open to doubt that each stage of cooling would be much longer in the case of these planets than the corresponding stage of our earth's cooling.* Jupiter contains 340 times as much matter as the earth, so that if the two orbs were of the same density Jupiter would have a diameter seven times as great, and a surface about forty-nine times as great, as the earth's. He would radiate, therefore, if at the same temperature, forty-nine times as much heat; but he would have about

* The argument here used was first advanced by Sir Isaac Newton. "A globe of iron an inch in diameter," he says, "exposed red hot to the open air, will scarcely lose all its heat in an hour's time; but a greater globe would retain its heat longer in the proportion of its diameter, because the surface (in proportion to which it is cooled by the contact of the ambient air) is in that proportion less in respect of the quantity of the included hot matter; and therefore a globe of red hot iron equal to our earth, that is about 40,000,000 feet in diameter, would scarcely cool in an equal number of days, or in about 50,000 years. But I suspect that the duration of heat may, on account of some latent causes, increase in a yet less proportion than that of the diameter; and I should be glad that the true proportions were investigated by experiments." Buffon (according to Bailly) made experiments of the kind, with results confirming Newton's opinion.

* I may, perhaps, be permitted to remark here, that the details of many among the arguments here indicated will be found fully discussed in my Lecture delivered at Glasgow on November 9 last, and published by Messrs. Collins, of that city.

340 times as much heat to part with for each degree of cooling; hence his rate of cooling would be slower in the proportion of about 7 to 1. Jupiter appears actually to have a much greater volume than has been here supposed, his diameter exceeding that of the earth nearly eleven times, and his surface exceeding hers about 115 times. This would still leave his rate of cooling slower in the proportion of about three to one. But inasmuch as it is certain that if formed of the same material, Jupiter, when at the same stage of cooling, would be much denser than the earth (because of his greater attractive energy), our assumption rather falls short of the truth than exceeds it. The argument next to be considered will sufficiently indicate this. To complete the present argument it is only necessary to add that the various stages of cooling through which our earth has already passed have certainly required hundreds of millions of years, wherefore the corresponding stages for Jupiter would require *seven* times as many hundreds, and the total period required by Jupiter to reach the earth's present condition of development would exceed the time during which our earth has endured, from her beginning until now, *six* times, even though Jupiter at his beginning were no hotter than the earth. As he was certainly much hotter, it may fairly be said that he would require thousands of millions of years to reach the stage which the earth has reached after hundreds of millions of years; and that, if the two planets were both fashioned at the same time, Jupiter must still require thousands of millions of years before he will have attained to that stage of planetary life through which our earth is now passing. Saturn would not be so far in the rear of our earth because his mass does not exceed hers so greatly. Still he contains nearly a hundred times as much matter, and must be regarded as in all probability, so far as this first argument alone is concerned, hundreds of millions of years behind our earth in point of development.

The second argument is that derived from the small density of Jupiter and Saturn. Jupiter has a volume exceeding the earth's about 1250 times, but a mass only exceeding hers 340 times. Saturn's volume exceeds the earth's 700 times, his

mass only 99 times. Jupiter's mean density is therefore about one-fourth, Saturn's about one-seventh, of the earth's. Science no longer accepts the belief that either planet is formed in the main of different materials, spectroscopic analysis having demonstrated the existence of a general uniformity of structure throughout the solar system. Neither can science any longer admit the possibility that Jupiter and Saturn are hollow globes, experiment having proved that under the pressure exerted by the mass of either planet, a substance a hundred times stronger than the strongest steel would be perfectly plastic throughout the greater portion of either planet's interior, so that hollow spaces, if they could be formed for a moment, would fill up just as an open space formed for a moment by thrusting water on one side fills up as the water flows back to its normal position. We are forced then to believe that there is some cause at work to overcome the natural tendency of the planet's mass. Doubtless this cause is the same which operates to prevent the sun's mighty mass from concentrating, as it would, into an intensely dense globe, were its gravitating energies left unresisted—viz., intense heat. The sun is, of course, very much hotter than Jupiter and Saturn; his heat, indeed, overcomes a very much greater contractive energy. But Jupiter and Saturn must be very much hotter than the earth.

The third argument is based on the telescopic evidence of the existence of a very deep cloud-laden atmosphere surrounding each of the planets Jupiter and Saturn.

It is first to be noticed, as respects this argument, that the general aspect of the belts of Jupiter (Saturn is too far off for similar appearances to be noted) indicates the presence of rounded masses of cloud floating in a deep atmosphere. These rounded masses can only be seen as such on the middle parts of the disc, but there their appearance shows unmistakably that they are really round,—that is, not merely round in appearance, as a circle is round, but round as a globe is round. No one who has studied Jupiter with a powerful telescope can for a moment doubt that some at least among the cloud-masses which are seen in his disc are roughly globular in shape. It is sufficient if only

one of these masses has really had such a shape, for though any number of flat objects may float in a sea which so far as they were concerned might be shallow, yet if it is known that a single object has floated in it which was not flat, but on the contrary had great length, and breadth, and thickness, we know that the sea must be a deep one. Some among the rounded clouds of Jupiter, which not only by their shape, but by their shading, indicate a globular figure, would, if actually globular, require an atmosphere five or six thousand miles deep at the very least. The atmosphere may not be so deep as that, or may be very much deeper. Certainly it would at once remove the difficulty last considered if we could suppose the cloud-bearing atmosphere of Jupiter to be thirteen or fourteen thousand miles in depth, for then the solid globe within would not differ very much in mean density from the globe of our earth. But supposing we assume, as the result of the actual telescopic aspect of the cloud-belts, the depth of the atmosphere to be but about 2000 miles, which would be less than the apparently minute diameter of one of the satellites, we should even then find that under the tremendous pressure exerted by Jupiter's attraction the lower strata of such an atmosphere, if composed of any gases known to us, and at the temperature of our own air even in the torrid zones, would be simply compressed into the solid or liquid form. At least they could not continue to obey the laws which perfect gases obey under pressure. Assuming the pressure at the visible limit of the cloud envelope to be less than one-thousandth part of the pressure of our air at the sea-level, then fifteen miles below that limit the pressure would be equal to that of air at our sea-level, fifteen miles lower one thousand times as great, fifteen miles lower one million times as great, and fifteen miles lower yet, or still only sixty miles below the visible limits of the cloud envelope of Jupiter, the pressure would be one thousand million times as great as at our sea-level. The density, if only the gases composing that atmosphere could remain as perfect gases, would be more than a million times greater than the density of water, and thirty or forty thousand times greater than the density

of the heaviest known elements. Of course there is no such pressure, no substance exists at that density, sixty miles below the visible limits of Jupiter's atmosphere, nor ten thousand miles lower yet. No gas could remain as such at ordinary temperatures beneath a pressure which would make it as dense even as water; and if strata could and did exist in Jupiter at the higher pressures and densities named, he would weigh many thousand times as much as he actually does. But we are again forced to the belief that, unless his atmosphere is made of substances altogether different from any with which we are acquainted, there must be some power at work to prevent the compression which would otherwise inevitably result from the tremendous attractive energy of Jupiter's mass. That power can be no other than the fierce heat with which his whole frame, his atmosphere (and all but the exterior strata outside the outermost cloud-layers) are instinct.

It appears to me that a fourth argument of very great force can be derived from the cloud-belts in the atmosphere of Jupiter and his brother giant, Saturn.

The existence of well-defined belts is proof positive of the existence of different rates of rotational motion. For instance, we cannot explain our own trade-wind zones, without taking into account the different velocities due to rotation near the equator and in high latitudes,—matter flowing towards the equator lags behind, matter flowing from it travels in advance, and in either case zones are formed. If a similar explanation could be given of the belts of Saturn and Jupiter doubtless they would be accounted for. But where are we to find the varieties of heat in various latitudes of either planet which could account for the multitudinous belts sometimes seen? or how, if the sun's slow action on these remote and large planets were in question, could we account for the rapid formation and dissipation of cloud-belts? The largeness of these planets is a point of importance to the argument, because the larger a planet the less, *ceteris paribus*, is the variation of temperature for any given difference of latitude measured as a distance in miles. If then we cannot look for the required differences of rotational velocity where we find them in our earth's

case, it is clear we must turn to difference of rotational velocity on account of difference of distance from the axis, not at places in different latitudes, but in places at different levels. In other words, we must conceive that under the action of the planet's intense heat vaporous disturbances of the nature of uprush and downrush are continually taking place. Matter rushing upwards from low levels to high levels, where the rate of rotation is very much greater, lags behind, while matter rushing downwards is carried in advance, and thus cloud zones are formed.

A fifth argument is derived from certain considerations depending on the behavior of sun-raised cloud-masses in our own air, both with regard to the progress of the day, and with regard to the progress of the year. We know that speaking generally the clouds change as the day progresses, and that this is specially the case in those regions of the earth where regular zones exist. The sun, in tropical regions, rises in a clear sky and quickly gathers clouds together; these remain till the afternoon, when they become dissipated (usually with violent disturbance, electrical and otherwise), and the sun sets in a clear sky. As seen from Venus or Mercury the cloud-belt would extend across the middle of the earth's disc, but would not reach to the edge, either on the west or sun-rising side, or on the east or sun-setting side. Nothing of the kind is observable in the cloud-belts of Jupiter. Not only do they extend right across (though becoming fainter near the edges because seen through deeper atmosphere), but cloud masses have been known to remain, quite recognizable in contour, during many Jovian days, and even for forty or fifty of our own much longer days. So also with regard to the year. In Jupiter's case, indeed, the effect of annual changes in the arrangement of clouds would not be recognizable, simply because the planet's equator is nearly coincident with the plane of Jupiter's orbit. But in Saturn's case the inclination of the equator is considerable; so that, as seen from the sun, the equator passes far to the north and far to the south of the centre of the disc, during the summer of the northern and southern hemispheres, respectively. We should expect to find

these changes accompanied by corresponding changes in the position of the central zone of clouds. Our terrestrial tropical cloud-zone, being sun-raised, follows the sun, passing north of the equator during our northern summer, until at midsummer it reaches the tropic of Cancer, and passing south of the equator during the southern summer, until at midsummer (December) it reaches the tropic of Capricorn. But instead of the mid-zone of Saturn behaving in this way, it remains always equatorial.

Another (the sixth) argument, and in my opinion an argument altogether irresistible, is derived from the changes which have taken place from time to time in the outline of the planets Jupiter and Saturn, *unless* observations made by most skilful astronomers, and with instruments of considerable power, are to be rejected as unworthy of trust. I refer in particular, first to the observations by Admiral Smyth, Sir R. Maclear, and Professor Peacock, of the reappearance of the second satellite of Jupiter a few minutes after it had apparently made its complete entry upon the planet's disc at the beginning of a transit; and secondly, to the fact that Sir W. and Sir J. Herschel, Sir G. Airy, the Bonds and Coolidge in America, and several of the Greenwich observers, have recognized the occasional assumption by Saturn of what is commonly called his "square shouldered" aspect. These observations are far too well-authenticated, and were made by observers far too skilful, to be open to doubt or cavil. They cannot possibly be explained except by assuming that the outlines of Jupiter and Saturn are variable to such an extent that the variations appreciably affect the figure of the planets. Such variations, involving differences of level of two or three thousand miles, are utterly incredible, and in point of fact impossible, in the case of planets like our earth. The heat generated by such changes would of itself suffice to melt and in large degree to vaporize the crust for many thousands of square miles around the scene of upheaval or depression, so that we should thus have, but in another way, the heat which my theory indicates. On the other hand, such changes of outline in a planet whose apparent outline is not formed by its real surface, but by cloud layers

thousands of miles above the real surface, are very easily explained. Nay, they are to be expected (though only as rare phenomena). We know that cloud-belts sometimes form, or are dissipated, rapidly on the face of the disc. Equally, therefore, they must sometimes form or become dissipated rapidly at parts of the planet so placed as to form the apparent outline. There would then be a rapid change of outline, such as must have occurred in the case of the apparent reappearance of Jupiter's second satellite. Slower changes in the cloud-belts would correspond to the changes of shape observed in Saturn's case, and would explain Schröter's observation that at times the outline of Jupiter has seemed to him irregular, as if the planet's surface were partially flattened. Other observations tending in the same direction, as peculiarities in the shape of the shadows of Jupiter's satellites on the planet, in the shape of Saturn's shadows on his rings, and so on, are of less weight perhaps than those already considered, but unless those who recorded them (including some of the most skilful observers known) were entirely deceived, such observations can only be fully explained by the great depth of the cloud-laden atmosphere which surrounds the giant planets.

Lastly, there is the argument derivable from the peculiar brightness of the planets Jupiter and Saturn. These planets might be so hot as to glow with an intense light and heat, yet no part of

their light might be discernible, the deep cloud-layers simply cutting it off before it reached the outermost or visible cloud surface. Or this might happen with all the rays except those which travelled the shortest way through the cloud-layers. In the former case we should perceive some of the inherent light of these planets, in the latter we should only perceive their inherent light in the central parts of the disc, which would therefore look brighter than the parts near the 'edge. This last is the phenomenon actually observed, but it does not of itself suffice to prove (though rendering it highly probable) that the light from the middle portion of the disc is *in part* inherent. Nevertheless the planet's surface might, as I have already said, be intensely hot, and yet no trace of the inherent light be perceptible by us. That, however, could only happen because of the existence of very deep cloud-layers entirely shrouding the glowing planet, and in this case, as the clouds would probably—like our own clouds—have a much higher reflective capacity than rock surfaces [have, we should expect to find the planets Jupiter and Saturn shining much more brightly, though only by reflected light, than they would if their surface resembled that of our own earth, or Mars, or Jupiter. Now the following table from Zöllner's "Grundzüge einer allgemeinen Photometrie des Himmels," gives very interesting evidence on this point:—

Snow just fallen	reflects about	783	parts of 1000 of incident light ;
White paper	" "	700	" " " "
Jupiter's surface	" "	624	" " " "
Saturn's surface	" "	498	" " " "
Uranus's surface	" "	640	" " " "
Neptune's surface	" "	465	" " " "

whereas

White sandstone	reflects only about	237	parts of 1000 of incident light ;
Clay marl	" "	156	" " " "
Mars's surface	" "	267	" " " "
The Moon's surface	" "	174	" " " "

We may take Jupiter and Saturn together, and Mars and the moon; getting average reflective power of giant planets : that of small planets : : 561 : 220; or the giant planets, if they owe their light entirely to reflection, have a reflective power more than $2\frac{1}{2}$ times greater than that of the small bodies, Mars and the moon. As the sea regions

of Mars are observably darker than his land regions, it is probable that our earth, if her light could be estimated in the same way (by an observer on Mercury or Venus) would be found to have a smaller average reflective power than Mars, her seas being so much larger.

We are forced by this argument to one of two conclusions—either Jupiter and

Saturn shine in part by inherent light, or they are so thoroughly cloud-wrapped as to have a very high reflective power. Either conclusion would agree equally well with the theory I have advocated, though, of course, the former would be much more effective, and would in fact be quite decisive in its favor.

For my own part, I think that the photometric evidence renders it very probable that a slight portion of the light of the planets Jupiter and Saturn is inherent; and I think the color of the equatorial belt of Jupiter and its changes of color correspond with this view. I should be disposed to assign, as the reflective power of Jupiter (his *albedo*, as Zöllner calls it) about 500, or more than twice the reflective power of white sandstone, and thus to attribute about one-fifth of Jupiter's light to the planet's inherent lustre. (In Saturn's case Zöllner's observations are much less satisfactory—his measures indeed of the planet's total light were probably even more satisfactory than in Jupiter's case, but it is exceedingly difficult to take properly into account the effect of the ring-system, which, though very much foreshortened when Zöllner made his observations, must nevertheless have appreciably affected his results.) All the known facts accord well with this view.

Certainly the spectroscopic evidence recently obtained by Vogel, or rather the general spectroscopic evidence (for his results are not new) is not opposed, as he seems to imagine, to the theory that the actual surface of Jupiter is intensely hot. His argument is that, because dark lines are seen in the spectrum of Jupiter, which are known to belong to the absorption spectrum of aqueous vapor, the planet's surface cannot be intensely hot. But Jupiter's absorption spectrum belongs to layers of his atmosphere lying far above his surface. We can no more infer—nay, we can far less infer—the actual temperature of Jupiter's surface from the temperature of the layers which produce his absorption spectrum, than a being who approached our earth from without observing the low temperature of the air ten or twelve miles above the sea-level could infer thence the temperature of the earth's surface. There may be, in my opinion there almost certainly *are*, layers of cloud several thousand miles deep between the surface we see and the real surface of the

planet. I do not suppose that the inherent light referred to above as probably received from Jupiter, is light coming *directly* from his glowing surface, but the glow of cloud masses high above his surface, and illuminated by it,—perhaps even the glow of cloud-layers lit up by lower cloud-layers which themselves even may not receive the direct light emitted by his real surface.

To sum up, it appears to me, that a theory to which we are led by many effective and some apparently irresistible arguments, and against which no known facts appear to afford any argument of force, should replace the ordinary theory, originated in a haphazard way, and in whose favor no single argument of weight has ever been adduced. Since it appears,—(1) that if the accepted theory of the development of our system is true, the large planets must of necessity be far younger, that is hotter, than our earth and other small planets; (2) that if made of similar materials, those planets must of necessity be far denser than they actually are, unless they are very much hotter than the earth; (3) that the atmospheres (judging of their depth from the planet's appearance) would be compressed into solid and very dense matter under the planet's attraction unless exceedingly hot throughout their lower layers; (4) that the belts and their changes imply the uprush and downrush of heated masses of vapor through enormous depths of atmosphere; (5) that the cloud-belts neither change with the progress of the day nor of the year in the large planets, but in a manner in no way referrible to the sun, and are therefore presumably raised by the intense heat of the planet's own substance; (6) that so remarkable are the changes taking place in the atmospheres of Jupiter and Saturn, as appreciably (even at our enormous distance) to affect the figure of those planets; and (7) that the planets shine with more than $2\frac{1}{2}$ times the brightness they would have if their visible surface were formed of even so lustrous a substance as white sandstone—I think the conclusion is to all intents and purposes demonstrated that the planets Jupiter and Saturn really are in a state of intense heat. If they ever are to be the abode of life, they will probably not be ready to subserve that purpose for hundreds of millions of years.—*Popular Science Review*.

"OUT OF THE MOUTH OF BABES."

My little niece and I—I read
My Plato in my easy chair:
And she was building on the floor
A pack of cards with wondrous care.

We worked in silence, but, alas!
Among the cards a mighty spill.
And then the little ape exclaimed,
"Well! Such is life! Look, Uncle Will!"

I gave a start and dropped my book—
It was the Phædo I had read—
A sympathetic current thrilled,
Like lightning, through my heart and head.

I eyed with curious awe the child,
The unconscious Sibyl, where she sat,
Whose thoughtless tongue could babble forth
Strange parables of life and fate.

Yes, such is life! a Babel house,
A common doom hath tumbled all,
King, Queen, and Knave, and plain, and trump,
A motley crew in motley fall!

We rear our hopes, no Pharaoh's tomb,
Nor brass could build so sure a name;
But, soon or late, a sad collapse,
And great the ruin of the same.

Ah such is life! Oh, sad and strange
That Love and Wisdom so ordain!
Some ere the Builder's hands have yet
One card against another lain;

Some when the house is tiny still;
Some when you've built a little more;
And some when patience hath achieved
A second, third, or higher floor.

Or should you win the topmost stage,
Yet is the strength but toil and pain—
And here the tiny voice rejoined,
"But I can build it up again."

My height of awe was reached. Can babes
Behold what reason scans in vain?
Ah, childhood is divine, I thought,—
Yes, Lizzie, build it up again!

Cornhill Magazine.

YOUNG MUSGRAVE.

CHAPTER I.

THE FAMILY.

It would be difficult to say how Penninghame Castle had got that imposing name. It was an old house standing almost on the roadside, at least at the termination of a rough country road leading from the village, which widened into a square space at the side of the house. The village road was lined with trees, and it pleased the Musgraves to believe that it had been in happier days the avenue to their ancient dwelling, while the rough square at the end had been the courtyard. The place itself consisted of a small mansion not important enough to be very distinctive in architecture, built on to the end of an old hall, the only remaining portion of a much older and greater house. This hall was entered directly by a great door of heavy oak, from which a slope of ancient causeway descended into the road below—an entrance which was the only thing like a castle in the whole *ensemble*, though it ought to have led to an ancient gateway and portcullis rather than to the great door generally wide open, through which, according to the story, a horseman once entered to scare the guests at their feast and defy the master at the head of the table. The hall was not used for such festive purposes now, nor threatened by such warlike intruders. It had known evil fortune in its day and had been degraded into a barn, its windows blocked up, its decorations destroyed—but had come to life again for the last fifty years and had come back to human use, though no longer as of old. Round the corner was the front of the old mansion, built in that pallid gray stone, which adds a sentiment of age, like the ashy paleness of very old people, to the robust antiquity of mason-work more lasting than any that is done now. Successive squires had nibbled at this old front, making windows there and doorways here: windows which cut through the string-courses above, and a prim Georgian front door, not even in the centre of the old arched entrance, which had been filled up, which gave a certain air of disreputable irregularity to

the pale and stern old dwelling-place. Ivy and other clinging growths fortunately hid a great deal of this and added importance to the four great stacks of chimneys which, mantled in its short, large leaves and perpetual greenness, looked like turrets, and dignified the house. A lake behind somewhat coldly blue, and a great hill in front somewhat coldly green, showed all the features of that north country which was not far enough north for the wild vigor and vivifying tints of brown bracken and heather. The lake came closely up in a little bay behind the older part of the house where there was a rocky harbor for the boats of the family; and between this little bay and the gray walls was the flower garden, old-fashioned and bright though turned towards the unkindly east. Beyond this was a kind of broken park with some fine trees and a great deal of rough underwood, which stretched along the further shore of the lake and gave an air of dignity to the dwelling on that side. This was still called "the Chase" as the house was called the Castle, in memory it might be supposed of better days. The Musgraves had been cavaliers and had wasted their substance in favor of the Charleses, and their lands had been ravaged, their park broken up into fields, their avenue made a common road, half by hostile neighbors, half by vulgar intrusion, in the days when the revolutionists had the upper hand. So they said, at least, and pleas of this kind are respected generally, save by the very cynical. Certainly the present occupants of the house believed it fervently, and so did the village; and if it was nothing more it was a great comfort and support to the family, and made them regard the rude approach to "the castle" with forbearance. The public right of way had been established in those stormy times. It was a sign even of the old greatness of the house. It was better than trim lawns and smiling gardens, which would have required a great deal of keeping up. It was, however, a family understanding that the first Musgrave who made a rich marriage, or who in any other way become a favorite of fortune, should by some vague means—

an act of parliament or otherwise—reclaim the old courtyard and avenue and plant a pair of magnificent gates between the castle and the village; also buy back all the old property; also revive the title of Baron of Penninghame, which had been in abeyance for the last two hundred years, and do many other things to glorify and elevate the family to its pristine position; and no Musgrave doubted that this deliverer would come sooner or later, which took the bitterness out of their patience in the mean time and gave them courage to wait.

Another encouraging circumstance in their lot was that they were fully acknowledged as the oldest family in the county. Other and richer persons pushed in before them to its dignities, and they were no doubt very much left out of its gaieties and pleasures; but no one doubted that they had a right to take the lead if ever they were rich enough. This, however, did not seem likely, for the moment at least. The family at Penninghame had, what is much to be avoided by families which would be happy, a history, and a very recent one. There were two sons, but neither of them had been seen at the castle for nearly fifteen years, and with the name of the elder of these, there was connected a dark and painful story, not much known to the new generation, but very well remembered by all the middle-aged people in the county. Young Musgrave had been for a year or two the most popular young squire in the north country, but his brightness had ended in dismal clouds of misfortune and trouble and bloodshedding, with perhaps crime involved, and certainly many of the penalties of crime. He had not been seen in the north country since the crisis which made all the world acquainted with his unfortunate name; and neither had his younger brother been seen again in their father's house, which was thus left desolate, except for the one daughter, who had been its delight before and was now its only stay. So far as the country knew, young Musgrave still lived, though he was never mentioned, for there had been no signs of mourning in the house, such as must have intimated to the neighbors the fact of John's death—which also of course would have made Randolph the heir. But not even Randolph

appeared from his good living in the West of England to break the monotony of life in his father's house. Squire Musgrave and his daughter lived there alone now. They had been alone these fifteen years. They had little society and did not keep up a large establishment. He was old, and she was no longer young enough to care for the gaieties of the rural neighborhood. Thus they had fallen out of the current of affairs. The family was "much respected," but comparatively little heard of after the undesired and undesirable notoriety it had once gained.

Thus abandoned by its sons, and denuded of the strongest elements of life, it may well be supposed that the castle at Penninghame was a melancholy house. What more easy than to conjure up the saddest picture of such a dwelling? The old man, seated in his desolate home, brooding over perhaps the sins of his sons, perhaps his own—some injudicious indulgence, or untimely severity which had driven them from him; while the sister, worn out by the monotony of her solitary life, shut herself out from all society, and spent her life in longing for the absent, and pleading for them—a sad, solitary woman, with no pleasure in her lot, except that of the past. The picture would have been as appropriate as touching, but it would not have been true. Old Mr. Musgrave was not the erring father of romance. He was a well-preserved and spare little man, over sixty, with cheeks of streaky red, like winter apples, and white hair, which he wore rather long, falling on the velvet collar of his old-fashioned coat. He had been an outdoor man in his day, and had farmed, and shot, and hunted, like others of his kind, so far as his straitened means and limited stables permitted; but years and circumstances had impaired his activity, and he had been strong enough to retire of his own free will, while graceful abdication was still in his power. He spent most of his time now in his library, with only a constitutional walk, or easy ramble upon his steady old cob, to vary his life, except when quarter sessions called him forth, or any other duty of the magistracy, to which he paid the most conscientious attention. The Musgraves were not people whom it was easy to crush, and Fate had a hard bargain in

the old squire, who found himself one occupation when deprived of another with a spirit not often existing in old age. He had committed plenty of mistakes in his day, and some which had been followed by tragical consequences, a practical demonstration of evil which fortunately does not attend all the errors of life; but he did not brood over them in his old library, nor indulge unavailing compunctions, nor consider himself under any doom; but on the contrary studied his favorite problems in genealogy and heraldry, and county history, and corresponded with *Notes and Queries*, and was in his way very comfortable. He it was who first pointed out that doubtful blazoning of Marmion's shield, "color upon color," which raised so lively a discussion; and in questions of this kind he was an authority, and thoroughly enjoyed the little tilts and controversies, many of them as warm as their subjects were insignificant. His family was dropping, or rather had dropped, into decay; his eldest son had been virtually lost to him for a dozen years; his youngest son was alienated and a stranger; and some of this at least was the father's fault. But neither the decay of the house, nor the reflection that he was at least partially to blame, made any great difference to the squire. There had no doubt been moments, and even hours, when he had felt it bitterly; but these moments, though perhaps they count for more than years in a man's life, do not certainly last so long, and age has a way of counterfeiting virtue, which is generally very successful, even to its personal consciousness. Mr. Musgrave was generally respected, and he felt himself to be entirely respectable. He sat in his library and worked away among his county histories, without either compunction or regret—who could throw a stone at him? He had been rather unfortunate in his family, that was all that could be said.

And Mary Musgrave, his daughter, was just as little disposed to brood upon the past. She had shed many tears in her day, and suffered many things. Perhaps it was in consequence of the family troubles which had come upon her just at the turning-point in her life that she had never married; for she had been one of the beauties of the district—courted and admired by everybody, and wooed

by many: by some who indeed still found her beautiful, and by some who had learned to laugh at the old unhappiness of which she was the cause. Miss Musgrave did not like these last, which was perhaps natural; and even now there would be a tone of satire in her voice when she noted the late marriage of one or another of her old adorers. Women do not like men whose hearts they have broken to get quite healed, and console themselves; this is perhaps a poor feeling, but it is instinctive, and though it may be stoutly struggled against in some cases, and chidden into silence in many, it still maintains an untolerated yet obstinate life. She was glad and laughed when she heard the news; but yet there was a sharper tone in her congratulations. But neither those little jars, nor yet the more evident grief of her brothers' long disappearance, had affected her seriously. She lived a not unhappy life, notwithstanding all that had happened. It was she who did everything that was done at Penninghame. The reins which her father had dropped almost unawares she had taken up. She managed the estate; kept the bailiff in order; did all business that was necessary with the lawyer; and what was a greater feat still, kept her father unaware of the almost absolute authority which she exercised in his affairs. It had to be done, and she had not hesitated to do it; and on the whole, she, too, though she had suffered many heartaches in her day, was not unhappy now, but lived a life of full activity and occupation. She was five-and-thirty and gray-haired—she who had been one of the fairest flowers of the north country. A woman always has to come down from that eminence somehow; whether she does it by becoming some one's wife, or by merely falling back into the silence of the past, and leaving the place free for others, does not much matter. Perhaps, indeed, it is the old maid who has the best of it. A little romance continues to encircle her in the eyes of most of those who admired her. She has not married—why has she not married—that once admired of all admirers? Has it been that she, too, shared the lot which she inflicted on so many, and was not loved where she loved? or was it perhaps that she had made a mistake—sent away some one, perhaps

who knows, the very man who thought of her thus kindly and regretfully, whom she was afterwards sorry to have sent away? Nobody said this in words, but Mary Musgrave at thirty-five was more tenderly thought of than Lady Staunton, who had been the rival queen of the county. Lady Staunton was stout nowadays; in men's minds, when they met her sailing into a ball-room, prematurely indued with the duties of chaperon to her husband's grown-up daughters, there would arise a half-amused wonder how they could have worshipped at her feet as they once did. "Can this muckle wife be my true love Jean?" they said to themselves. But Miss Musgrave, who was slim as a girl in her unwedded obscurity, and whose eyes some people thought as bright as ever, though her hair was gray, gave rise to no such irreverent thoughts. There were men scattered through the world who had a romantic regard, a profound respect still for this woman whom they had loved, and who had preserved the distinction of loving no one in return. Nobody had died for love of her, though some had threatened it; but this visionary atmosphere of past adoration about her supplied a delicate homage, such as is agreeable even to an old maiden's heart.

And Miss Musgrave's life was spent chiefly in the old hall as her father's was spent in his library. She had been full of gay activity in her youth, a bold and graceful horsewoman, ready for anything that was going; but, with the same sense of fitness that wooed the squire to his retirement, she too had retired. She had put aside her riding-habits along with her muslins, and wore nothing but rich neutral-tinted silk gowns. Her only extravagance was a pair of ponies, which she drove into the county town when she had business to do, or to pay an occasional visit to her friends; but for far the greater part of her time she was visible to her little world in the old hall, where all her favorites and allies came, and all her poor people from the village, who found her seated like a scriptural potentate in the gate, ready to settle all quarrels and administer impartial justice. The hall was connected with the house by a short passage and two doors, which shut out all interchange of sound. There was nothing above it but

the high-pitched roof, the turret chimneys, and the ivy, nor was any interposition of servants necessary to usher in visitors by that ever open way. This was a thing which deeply affected the spirits and feelings of Eastwood, the only male functionary in the house—the most irreproachable of butlers. A door which opened straight into a room was felt by him to be an insult to the family; it was more like a farmhouse than a castle, and as for Miss Musgrave she was just as bad, too affable, a deal too affable, talking to any one that came to her, the tramps on the road as well as the ladies and gentlemen, whose unwilling steeds pranced and curveted on the old slope of causeway. This was a standing grievance to the butler, whose complaint was that the "presteedge" of the family was in hourly jeopardy, and his persistent complaint had thrown a shade of dissatisfaction over the household. This, however, did not move the lady of the house. Eastwood and the rest did not know, though some other people did, that it was the proudest woman in the county whom they accused of being too affable, and who received all the world in the old hall without the assistance of any gentleman usher. There were no windows in the side of the hall which fronted the road, but only this huge oaken door, all studded with bars and elaborate hinges of iron. On the other side there was a recess, with a large square window and cushioned seats, "restored" by village workmen in a not very perfect way, but still preserving the ample and noble lines of its original design. This windowed recess was higher than the rest of the hall, the walls of which were low, though the roof was lofty. But towards the front the only light was from the doorway, which looked due west, and beheld all the sunsets, flooding the ancient place with afternoon light and glories of evening color. The slanting light seemed to sweep in like an actual visitor in all its sheen of crimson and purple, when the rest of the house was in the still and hush of the gray evening. This was where Miss Musgrave held her throne.

Thus Penninghame Castle stood at the moment this story begins. The lake gleaming cold towards the north, rippling against the pebbles in the little

inlet which held the two boats; the broken ground and ancient trees of the Chase lying eastward, getting the early lights of the morning, as did the flower-garden, which lay bright under the old walls. A little genial hum of the kindly north-country women servants, who had been there for a lifetime, or who were the daughters and cousins of those who had been there for a lifetime, with Eastwood strutting important among them—the one big cock among this barndoor company—made itself audible now and then, a respectful subdued human accompaniment to the ripple of the lake and the whispering of the wind among the trees: and now and then a cheerful cackle of poultry, the sounds of the ponies in the stable, or the squire's respectable cob: the heavy steps of the gardener walking slowly along the gravel paths. But for these tranquil sounds, which but stilled the stillness there was nothing but quiet in and about the old house. There had been a time when much had happened there, when there had been angry dissensions, family convulsions, storms of mutual reproach and reproof, outbursts of tears and crying. But all that was over. Nothing had happened at Penninghame for a dozen years and more. The old squire in his library and Mary in her favorite old chamber lived as though there were no breaks in life, no anguishes, no convulsions, as quietly as their trees, as steadily as their old walls, as if existence could neither change nor end. Thus they went on from day to day and from year to year, in a routine which occupied and satisfied, and kept the sense of living in their minds, but in a lull and hush of all adventure, of all commotion, of all excitement. Time passed over them and left no trace, save those touches imperceptible at the moment which sorrow or passion could surpass in effect in one day, yet which tell as surely at the end. This was how things were at Penninghame when this story begins.

CHAPTER II.

MARY.

It was not one of Mary Musgrave's fancies to furnish her hall like a drawing-room. She had collected round her a few things for use, but she was not rich

enough to make her favorite place into a toy, as so many people do, nor had she the opportunity of "picking up" rarities to ornament it, as she might have liked to do had she been rich enough. The room had been a barn fifty years before. Then it became a family storeroom, was fitted up at one end with closets and cupboards, and became the receptacle for apples and such homely riches. It was Mary only who had rescued it back again to gentler use; and she had not been able to redecorate or renew it with careful pretence at antiquity as a richer or a more fully-trained person could have done. All that she could do for it was to collect her own doings there, and all the implements for her work. The windowed recess which got the morning sun was her business-room. There stood an old secretaire, or *escritoire*, chosen not because of its age or suitability, but because it was the only thing she had available, a necessity which often confers as much grace as the happiest choice. Opposite the doorway was an old buffet, rough, yet not uncharacteristic, which had been scrubbed clean by a generous house-maid when Miss Musgrave first took to the hall. And much it had wanted that cleaning; but the soap and the water and the scrubbing-brush had not agreed very well, it must be allowed, with the carved mahogany, which ought to have been oak. Between the open door and this big piece of furniture was a square of old Turkey carpet, very much faded, yet still agreeable to the eye, and a spindle-legged table of Queen Anne's days, with drawers, which held Miss Musgrave's knitting and a book, and sometimes homelier matters, mending which she chose to do herself, calculations which were not meant for the common eye. It was an afternoon of October, warm with the shining of that second summer which comes even in the north. The sunshine came so far into the room that it caught the edges of the carpet, and made a false show of gold upon the faded wool; and it was so warm that Miss Musgrave had drawn her chair farther into the room than usual, and sat in the shade to escape the unusual warmth. At this moment she was not doing anything. She was sitting quite silent, the book she had been reading laid open upon her knee, en-

joying the sun, as people enjoy it to whom it suddenly reveals itself after date when it is past expectation. In the end of October in the north country, people have ceased to think of warmth out of doors, or any blaze of kindly light from the skies, and the morning had been gray though very mild. It had caught Mary as she sat, a little chilly, close to her opened door, thinking of a shawl, and had transfigured the landscape and the heavens and her own sentiments all at once. She was sitting with her hands in her lap, and the open book on her knee, thinking of it, surprised by the sweetness of it, feeling it penetrate into her very heart, though she had drawn her chair back out of the glow. No, not thinking—people do not think of the sunshine; but it went into her heart, bringing back a confused sweetness of recollection and of anticipation—or rather of the anticipations which were recollections—which had ceased to exist except in memory. Just so does youth expect some sudden sweetness to invade its life: and sometimes the memory of that expectation, even when unfulfilled, brings a half sad, half sweet amusement to the solitary. It was so with this lady seated alone in her old hall. She was Mary again, the young daughter of the house; and at the same time she was old Miss Musgrave smiling at herself.

But as she did so a footstep sounded on the rough pavement of the ascent. No one could come unheard to her retreat, which was a safeguard. She gave a little shake to her head, and took up the open book, which was no old favorite to be dreamed over, but a modern book, and prepared the smoothing of the brow and closing up of mental windows which fits us to meet strange eyes. "It is only I," said the familiar voice of some one who knew and understood this slight movement; and then she dropped the book again, and let the smile come back into her eyes.

"Only you! then I may look as I please. I need not put on my company garb," she said, with a smile.

"I should hope not," said the newcomer, reaching the door with that slight quickening of the breath which showed that even the half-dozen steps of ascent was a slight tax upon him. He did not

even shake hands with her—probably they had met before that day—but took off his hat as he crossed the threshold, as if he had been going into a church. He was a clergyman, slim and slight, of middle size, or less than middle size, in somewhat rusty gray, with a mildness of aspect which did not promise much strength bodily or mental. The Vicarage of Penninghame was a poor one, too poor to be worth reserving for a son of the family, and it had been given to the tutor of Mr. Musgrave's sons twenty years ago. What had happened was natural enough, and might be seen in his eyes still, notwithstanding lapse of time and change of circumstances. Mr. Pennithorne had fallen in love, always hopelessly and mildly, as became his character, with the Squire's daughter. He had always said it did not matter. He had no more hope of persuading her to love him than of getting the moon to come out of heaven, and circumstances having set marriage before him, he had married, and was happy enough as happiness goes. And he was the friend, and in a measure the confidant, of this lady whom he had loved in the superlative poetical way—knew all about her, shared her life in a manner, was acquainted with many of her thoughts and her troubles. A different light came into his eyes when he saw her, but he was not at all unhappy. He had a good wife and three nice children, and the kind of life he liked. At fifty who is there who continues to revel in the unspeakable blisses of youth? Mr. Pennithorne was very well content: but still when he saw Mary Musgrave—and he saw her daily—there came a different kind of light into his eyes.

"I was in mental *deshabille*," she said, "and did not care to be caught, though after all it is not everybody who can see when one is not clothed, and in one's right mind."

"I never knew you out of your right mind, Miss Mary. What was it—no new trouble?"

"You are always a flatterer, Mr. Pen. You have seen me in all kinds of conditions. No, we don't have any troubles now. Is that a rash speech? But really I mean it. My father is in very good health and enjoys himself, and I enjoy myself—in reason."

"You enjoy yourself! Yes, in the way of being good to other people."

"Hush!" she said, putting up her hand to stop him in his little speech, sincere as it was. "Shall I tell you what it was that put me out of order for any one's eyes but an old friend's? Nothing more than this sunshine, Mr. Pen. Don't you recollect when we were young how a sudden thought of something that was coming would seize upon you, and flood you with delight—as the sun did just now?"

"I recollect," he said, fixing his mild eyes upon her, and shaking his head, with a sigh; "but it never came."

"That may be true enough; but the thought came, and 'life is but thought,' you know; the thing might not follow. However, we are all quite happy all the same."

He looked at her, still shaking his head.

"I suppose so," he said; "I suppose so; quite happy! but not as we meant to be; that was what you were thinking."

"I did not go so far. I was not thinking at all. I *think* that I think very seldom. It only caught me as the old thought used to do, and brought so many things back."

She smiled, but he sighed.

"Yes, everything is very different. Yourself—to see you here, offering up your life for others—making a sacrifice—"

"I have made no sacrifice," she said, somewhat proudly, then laughed. "Is that because I am unmarried, Mr. Pen? You wedded people, you are so sure of being better off than we are. You are too complacent. But I am not so sure of that."

He did not join in her laugh, but looked at her with melting eyes—eyes in which there was some suspicion of tears. It was perhaps a trifle unkind of her to call him complacent in his conjugality. There were a hundred unspeakable things in his look, pity, reverence, devotion, not the old love, perhaps, but something higher; something that was never to end.

"On the whole, we are taking it too seriously," she said, after a pause. "It is over now, and the sun is going down. And you come to talk to me, perhaps,

of something in the parish that wants looking to?"

"No—I came in only to look at you, and see that you were well. The children you were visiting the other day have the scarlet fever; and besides, I have had a feeling in my mind about you—a presentiment. I should not have been surprised to hear that there had been—letters—or some kind of advances made—"

"From whom?"

"Well," he said, after a slight pause; "they are both brothers—both sons—but they are not the same to me, Miss Mary. From John; he has been so much in my mind these two or three days, I have got to dreaming about him. Yes, yes, I know that is not worth thinking of; but we were always in such sympathy, he and I. Don't you believe in some communication between minds that were closely allied? I do. It is a superstition if you like. Nothing could happen to any of you, but if I were at ever so great a distance, I should know."

"Don't be too sure of that, Mr. Pen. Sometimes the dearest to us perish, and we know nothing of it; but I prefer your view. You dreamt of poor John? What did you see? Alas! dreams are the only ways of hearing apparently—"

"And your father is as determined as ever?"

"We never speak on the subject. It has disappeared like so many other things. Why continue a fruitless discussion which only embittered him and wore me out? If any critical moment should come, if—one must say it plainly—my father should be like to die—then I should speak, you need not fear."

"I never feared that you would do everything the best sister, the bravest friend could do."

"Do not praise me too much. I tell you I am doing nothing, and have done nothing for years; and sometimes it strikes me with terror. If anything should happen suddenly! My father is an old man; but talking to him now is of no use; we must risk it. What did you see in your dream?"

"Oh, you will laugh at me," he said with a nervous flutter; "nothing—except that he was here. I dreamt of him before, that time that he came home—after—"

"Don't speak of it," said Miss Musgrave, with a corresponding shiver. "To think that such things should happen, and be forgotten, and we should all go on so comfortably—quite comfortably! I have nothing particular to make me pleased, and yet I am as happy as most people—notwithstanding all that I have come through, as the poor women say."

"That is because you are so unselish—so——"

"Insensible—more like. I am the same as other people. What the poor folk in the village come through, Mr. Pen! loss of husbands, loss of children, one after another, grinding poverty, and want, and anxiety, and separation from all they care for. Is it insensibility? I never can tell; and especially now when I share it myself. I am as happy sometimes as when I was young. That sunshine gave me a ridiculous pleasure. What right have I to feel particularly happy?—but I did somehow—and I do often—notwithstanding all that has happened, and all that I have 'gone through.'"

Mr. Pennithorne gave a vague smile, but he made no reply, for either she was accusing herself unjustly, or it was a mood of mind which perhaps derogated a little from Mary Musgrave's perfection. He had a way himself of keeping on steadfastly on the one string of his anxiety, whatever it might be, and worrying everybody with it, and here he lost the object of his faithful worship. It might—nay, must—be right since so she felt, but he lost her here.

"And speaking of 'happiness,' she went on after a pause, "I want the children to come with me to Pennington to see the archery. It is pretty, and they will like it. And they like to drive behind my ponies. They are quite well? and Emily?"

"Very well. Our cow has been ill, and she has been worrying about it—not much to worry about you will say, you who have so much more serious anxieties."

"Not at all. If I had a delicate child and wanted the milk, I should fret very much. Will you send up for some of ours? As usually happens, we, who don't consume very much, have plenty."

"Thank you," he said, "but you must

not think that little Emmy is so delicate. She has not much color—neither has her mother, you know." He was a very anxious father, and looked up with an eager wistfulness into her face. Little Emmy was so delicate that it hurt him like a foreboding to hear her called so. He could not bear Miss Musgrave, whose word had authority, to give utterance to such a thought.

"I spoke hastily," she said, "I meant a child to whom the milk was of such use. She is ever so much stronger this year. As for paleness, I don't mind paleness in the least. She has such a very fair complexion, and she is twice as strong as last year."

"I am so glad you think so," he said, with the color rising to his face. "That is true comfort—for eyes at a little distance are so much better than one's own."

"Yes, she is a great deal stronger," said Miss Musgrave, "but you must send down for the milk. I was pale, too, don't you remember, when you came first? when I was fifteen."

"I remember—everything," he said; "even to the dress you wore. I bought my little Mary something like it when I was last in town. It was blue—how well I remember! But Mary will never be like you, though she is your god-child."

"She is a great deal better; she is like her mother," said Miss Musgrave promptly; "and Johnny is like his father, the best possible distribution. You are happy with your children, Mr. Pen. I envy people their children, it is the only thing; though perhaps they would bore me if I had them always on my hands. You think not? Yes, I am almost sure they would bore me. We get a kind of fierce independence living alone. To be hampered by a little thing always wanting something—wanting attention and care—I don't think I should like it. But Emily was born for such cares. How well she looks with her baby in her arms—always the old picture over again—the Madonna and the child."

"Poor Emily," he said, though why he could not have told, for Emily did not think herself poor. Mr. Pennithorne always felt a vague pity for his wife when he was with Miss Musgrave, as

for a poor woman who had many excellent qualities, but was here thrown into the shade. He could not say any more. He got up to go away, consoled and made comfortable he could not quite tell why. She was always sweet he said to himself as he went home. What she had said about being bored by children was a mere delusion, or perhaps a little conscious effort of self-deception, persuading herself that to have no children and to be independent was the best. What a wife she would have made! What a mother! He said this to himself quite impartially, knowing well that she never could have been wife for him, and felt a pang at his heart for the happiness she had lost. Married life was not unmix happiness always; it had its difficulties, he knew. But if *she* had married it was not possible that she could have been otherwise than happy. With her there could have been no drawbacks. Mr. Pennithorne looked upon the question from a husband's point of view alone.

When he was gone, Miss Musgrave sat still without changing her place, at first with a smile, which gradually faded away from her face, like the last suffusion of the sunshine, which was going too. She smiled at her fast friend to whom she knew, notwithstanding his legitimate affection for his Emily, she herself stood first of created beings. It was a folly, but it did not hurt him, she reflected with a faint amusement; and Emily and the children, notwithstanding this sentiment, were first and foremost really in his heart. Poor Mr. Pen! he had always been like this, mildly sentimental, offering up an uninterrupted gentle incense. But he was not in the least unhappy, though perhaps he liked by times to think that he was. Few people were really unhappy. By moments life was hard; but the struggle itself made a kind of happiness, a strain of living which it was good to feel by times. This was her theory. Most people when they come near forty have some theory or another, some settled way of getting through their existence, and adapting themselves for it. Hers was this: that evil was very much less than good in every way, and that people suffered a great deal less than they gave themselves credit for. Life had its com-

pensations, daily and hourly, she thought. Her own existence had no exciting source of joy in it, but how far it was from being unhappy! Had she been unhappy she would have scoffed at herself. What! so many things to enjoy, so many good and pleasant circumstances around, and not happy! Would not that have been a disgrace to any woman? So she was apt to think Mr. Pennithorne extracted a certain cunning enjoyment from that vain love for herself which had been so visionary at all times, and which he persuaded himself had subdued his life. She thought it had been a harmless delusion; a secret advantage rather; something to fall back upon; a soft and visionary grievance of which he never wearied. And perhaps she was right. She sat looking after him with a smile on her face.

The sun had crept away from her open doorway as they had talked. It was stealing further and further off, withdrawing from the line of the road, from the village roofs, from the gleam of the lake—and like the sun her smile stole away, from her eyes first, and then from the lingering curves about her mouth. Why was it that he could think he felt some action upon him of John's mind in the far distance, while she felt none? No kind of presentiment or premonition had come to her. It must be foolishness she was sure—superstition; for if sympathy could thus communicate even a vague thrill of warning from one to another through the atmosphere of the mind, surely she was a more likely object to receive it than Mr. Pennithorne! John knew her—could not doubt her, surely. Therefore to her, if to any one, this secret communication must have come. The smile disappeared altogether from her mouth as she entered upon this subject, and her whole face and eyes became grave and gray, like the dull coldness of the east, half-resentful of the sunset which still went on upon the other edge of the horizon, dispersing all those vain reflections to every quarter except that from which the sun rose. Could it be possible after all that John might trust Mr. Pennithorne with a more perfect confidence, as one unconnected and unconcerned with all that had passed, than he could give to herself? The thought, even though

founded on such visionary grounds, hurt her a little; yet there was a kind of reason in it. He might think that she, always at her father's side, and able to influence him in so many ways, might have done more for her brother; whereas with Mr. Pennithorne, who could do nothing, the sentiment of trust would be unbroken. She sat thus idly making it out to herself, making wondering casts of thought after her brother in the darkness, as inch by inch the light stole out of the sky. It was not a fine sunset that night. The sun was yellow and mournful: long lines of cloud broke darkly upon his sinking, catching only sick reflections of the pale light beneath. At last he was all gone, except one streaming yellow sheaf of rays that seemed to strike against and barb themselves into the damp green outline of the hill.

Her eyes were upon this, watching that final display, which, somehow in the absorption of her thoughts, kept her from observing an object near at hand, an old hackney-coach from Pennington town—where there was a railway station—which came along the road, a black, slow, lumbering vehicle, making a dull roll of sound which might have been a country cart. It came nearer and nearer while Miss Musgrave watched the bundle of gold arrows flash into the hill-side and disappear. Her eyes were dazzled by them, and chilled by their sudden disappearance, which left all the landscape cold, and wrapped in a grayness of sudden evening. Mary came to herself with a slight shiver and shock. And at that moment the dull roll of the cab ceased, and the thing stood revealed to her. She rose to her feet with a thrill of wonder and expectation. The hackney-carriage had drawn up at the foot of the slope, opposite to and beneath her. What was coming? Had Mr. Pennithorne been warned after all, while she had been left in darkness? Her heart seemed to leap into her throat, while she stood clasping her hands together to get some strength from them, and waiting for the revelation of this new thing, whatever it might be.

CHAPTER III.

THE NEW-COMERS.

THE cab was loaded with two boxes on the roof, foreign trunks, of a different

shape from those used at home; and a woman's face, in a fantastic foreign head-dress, peered through the window. Who could this be? Mary stood as if spell-bound, unable to make a movement. The driver, who was an ordinary cab-driver from Pennington, whose homely everydayness of appearance intensified the strangeness of the others, opened the door of the carriage, and lifted out first a small boy, with a scared face and a finger in his mouth, who stared at the strange place, and the figures in the doorway, with a fixed gaze of panic, on the eve of tears. Then out came with a bound, as if pushed from behind as well as helped a little roughly by the cabman, the foreign woman, at whose dress the child clutched with a frightened cry. Then there was a pause, during which some one inside threw out a succession of wraps, small bags, and parcels; and then there stepped forth, with a great shawl on one arm, and a basket almost as large as herself on the other, clearly the leading spirit of the party, a little girl some ten years old. "You will wait a moment, man, till we get the pay for you," said this little personage in a high-pitched voice, with the distinctness of enunciation which made it apparent that the language, though spoken with very little accent, was unfamiliar to her. Then she turned to the woman and said a few words much more rapidly, with as much aid of gesture as was compatible with the burdens. Mary felt herself look on at all this like a woman in a dream. What was it all—a dream or reality? She felt incapable of movement, or rather too much interested in this curious scene which was going on before her, to think of movement or interference of any kind. When she had given her directions, whatever they were, the little girl turned round and faced the open door and the lady who had not moved. She gave these new circumstances a long, steady, investigating look. They were within a dozen yards of each other, but the chatelaine stood still and said nothing, while the little invader inspected her, and prepared her assault. The child, who looked the impersonation of life and purpose between her helpless companion and the wondering stranger whom she confronted, was dark and pale, not like the fair English children to whom Mary Musgrave was accus-

tomed. Her dark eyes seemed out of proportion to her small, colorless face, and gave it an eager look of precocious intelligence. Her features were small, her dark hair falling about her in half-curling masses; her head covered with a little velvet cap, trimmed with fur, as unlike anything children wore in England at the time as the anxious meaning of her face was different from ordinary baby prettiness. She made a momentary pause—then put down the basket on the stones, threw the shawl on the top of it, and mounted the breach with resolute courage. The stones were rough to the child's little feet; there was a dilation in her eyes that looked like coming tears, and as she faced the alarming stranger, who stood there looking at her, a burning red flush came momentarily over her face. But she neither sat down and cried as she would have liked to do, nor ran back again to cling to the nurse's skirts like her little brother. The small thing had a duty to do, and did it with a courage which might have put heroes to shame. Resolutely she toiled her way up to Miss Musgrave at the open door.

"Are you—Mary?" she said; the little voice was strange yet sweet, with its distinct pronunciation and unfamiliar accent. "Are you—Mary?" the big eyes seemed to search the lady all over, making a rapid comparison with some description she had received. There was doubt in her tone when she repeated the name a second time, and the tears visibly came nearer, and got with a shake and tremor into her voice.

"What do you want with Mary?" said Miss Musgrave; "who are you, little girl?"

"I do not think you can be Mary," said the child. "He said your hair was like Nello's, but it is more like his own. And he said you were beautiful—so you are beautiful, but old—and he never said you were old. Oh, if you are not Mary, what shall we do? what shall we do?"

She clasped her little hands together, and for a moment trembled on the edge of a childish outburst, but stopped herself with a sudden curb of unmistakable will. "I must think what is to be done," she cried out sharply, putting her little hands upon her trembling mouth.

"Who are you? who are you?" cried

Mary Musgrave, trembling in her turn; "child, who was it that sent you to me?"

The little thing kept her eyes fixed upon her, with that watchfulness which is the only defence of weakness, ready to fly like a little wild creature at any approach of danger. She opened a little bag which hung by her side and took a letter from it, never taking her great eyes all the time from Miss Musgrave's face. "This was for you, if you were Mary," she said; holding the letter jealously in both hands. "But he said when I spoke to you, if it was you, you would know."

"You strange little girl!" cried Miss Musgrave, stepping out upon the stones and holding out her hands eagerly; but the child made a little move backward at the moment, in desperation of fear, yet courage.

"I will not give it you! I will not give it! it is everything we have—unless you are Mary," she cried, with the burst of a suppressed sob.

"Who are you then, child? Yes, I am Mary, Mary Musgrave—give me the letter. Is not this the house you were told of? Give me the letter—the letter!" said Miss Musgrave, once more holding out her hands.

And once more the child made her jealous mental comparison between what the lady was, and what she had been told to look for. "I cannot do what I please," she said, with little quivering lips. "I have Nello to take care of. He is only such a little, little child. Yes, it is the house he told me of; but he said if you were Mary— Ah! he said you would know us and take us into your arms, and be so kind, so kind!"

"Little girl," said Miss Musgrave, the tears dropping from her cheeks. "There is only one man's child that you can be. You are John's little girl, my brother John, and I am his sister Mary. But I do not know your name, nor anything about you. Give me John's letter—come to me, come to me, my child!"

"I am Lillas," said the little girl, but she held back, still examining with curious though less terrified eyes. "You will give it me back if you are not Mary," she went on, at length holding out the letter; but she took no notice of the invitation to come, which Mary herself forgot in the eagerness of her anxiety to

get the letter, the first communication from her brother—if it was from her brother—for so many years. She took it quickly, almost snatching it from the child's reluctant fingers, and leaning against the doorway in her agitation, tore it hastily open. Little Liliás was agitated too, with fear and desolate strangeness, and that terrible ignorance of any alternative between safety and utter destruction, which makes danger insupportable to a child. What were they to do if their claims were not acknowledged? Wander into the woods and die in the darkness like the children in the story? Little Liliás had feared nothing till that first doubt had come over her at the door of the house, where, her father had instructed her, she was to be made happy. But if they were not taken in and made happy, what were she and Nello to do? A terror of darkness, and cold, and starvation came upon the little girl. She would wrap the big shawl about her little brother, but what if wild beasts or robbers should come in the middle of the dark? Her little bosom swelled full, the sobs rose into her throat. Oh where could she go with Nello, if this was not Mary? But she restrained the sobs by a last effort, poor little hero. She sat down on the stone edge of the causeway, and held her hands clasped tight to keep herself together, and fixed her eyes upon the lady with the letter. The lady and the letter swam and changed, through the big tears that kept coming, but she never took those great dark, intense eyes, from Miss Musgrave's face. The Italian nurse had taken up Nello into her arms, and was occupied in hushing his little plaints. Nello was tired, hungry, sleepy, cold. He had no responsibility upon him, poor little mite, to overcome the weakness of nature. He was six, but small and delicate, and had never ceased to be the baby. He hung round his nurse's neck, holding her desperately, afraid of he knew not what. She had plenty to do to take care of him without thinking of what was going on above; though the woman was indignant to be kept waiting, and cast fierce looks in the intervals of petting Nello, upon the lady, the cold Englishwoman who was so long of taking the children to her arms. As for the cabman, emblem of the general un-

concern which surrounds every individual drama, he stood leaning calmly upon his horse, waiting for the *dénouement* whatever it might be. Miss Musgrave would see him paid one way or another, and this was the only thing for which he needed to care.

"Liliás," said Miss Musgrave, going hastily to the child, with tears running down her cheeks, "I am your aunt Mary, my darling, and you will soon learn to know me. Come and give me a kiss, and bring me your little brother. You are tired with your long journey, my poor child."

"No, no—I am not tired—only Nello; and he is h-hungry. Ah! kiss Nello, Nello—come and kiss him; he is the baby. And are you Mary—real, real Mary?" cried the little girl, bursting out into sobs; "oh, I cannot h-help it. I did not mean it; I was fr-frightened. Nello, come, come, Mary is here."

"Yes, Mary is here," said Miss Musgrave, taking the child into her arms, who, even while she sobbed against her shoulder, put out an impatient little hand and beckoned, crying, "Nello! Nello!" But it was not so easy to extract Nello from his nurse's arms. He cried and clung all the faster from hearing his sister's outburst; their poor little hearts were full; and what chokings of vague misery, the fatigue and discomfort infinitely deepened by a dumb consciousness of loneliness, danger, and strangeness behind, were in these little inarticulate souls! something more desperate in its inability to understand what it feared, its dim anguish of uncomprehension, than anything that can be realised and fathomed. Mary signed eagerly to the nurse to carry the little boy indoors into the hall, which was not a reassuring place, vast and dark as it was in the dimness of the evening, to a child. But she had too many difficulties on her hands in this strange crisis to think of that. She had the boxes brought in also, and hastily sent the carriage away, with a desperate sense as of burning her ships, and leaving no possible way to herself of escape from the difficulty. The gardener, who had appeared round the corner, attracted by the sound, presented himself as much out of curiosity as of goodwill to assist in carrying in the boxes, "though it would be handiest to drive

round to the front door, and tak' them straight oop t'stair," he said, innocently enough. But when Miss Musgrave gave authoritative directions that they were to be brought into the hall, naturally the gardener was surprised. This was a proceeding entirely unheard of, and not be understood in any way.

"It'll be a deal more trouble after," he said, under his breath, which did not matter much. But when he had obeyed his mistress's orders, he went round to the kitchen full of the new event. "There's something oop," the gardener said, delighted to bring so much excitement with him, and he gave a full account of the two pale little children, the foreign woman with skewers stuck in her hair, and finally, most wonderful of all, the boxes which he had deposited with his own hands on the floor of the hall. "I ken nothing about it," he said, "but them as has been longer about t' house than we could tell a deal if they pleased; and Miss Brown, it's her as is wanted," he added leisurely at the end.

Miss Brown, who was Mary Musgrave's maid, and had been standing listening to his story, with frequent contradictions and denials, in a state of general protestation, started at these words.

"You great gaby," she said, "why didn't you say so at first?" and hurried out of the kitchen, not indisposed to get at the bottom of the matter. She had been Miss Musgrave's favorite attendant for twenty years, and in that time had, as may be supposed, known about many things which her superiors believed locked in the depths of their own bosoms. She could have written the private history of the family with less inaccuracy than belongs to most records of secret history. And she was naturally indignant that Tom Gardener, a poor talkative creature, who could keep nothing to himself, should have known this new and startling event sooner than she did. She hurried through the long passage from the kitchen, casting a stealthy glance in passing at the closed door of the library, where the squire sat unconscious. A subdued delight was in the mind of the old servant; certainly it is best when there are no mysteries in a family, when all goes well—but it is not so amusing. A great event of which it was evident the squire was in ignorance,

which probably would have to be kept from him, and as much as possible from the household—well, it was a pity, but it was exciting, it woke people up. Already Miss Brown had lost the dignity and gravity of demeanor which characterised her generally, and was light and active as a young girl. She went into the dining room, tripping noiselessly. By evil fate Eastwood was there arranging his plate on the sideboard. He had not been in the kitchen when Tom Gardener told his tale. Eastwood had not come till after the family troubles, and occupied quite an inferior position in so far that he *knew nothing*. He looked at her with surprise and a certain resentment as on who was trespassing on his sphere.

"I did not mean to disturb you, Mr. Eastwood," said Miss Brown.

"I never lets nobody disturb me," said the butler, who was from the south; "them as does their own business is never in nobody's way."

"I am doing my own business as much as you are. I am going to Miss Musgrave."

"Miss Musgrave didn't give me no orders to call you," said Eastwood, "and I don't hold with places as has no bells. Gentlefolks didn't ought to live in holes like that. I never was used to no such ways."

"I'll let Miss Musgrave know," said Brown, in high disdain, and swept through the door which led from the dining-room into the little elbow of passage closed with a door at the other end which led to the hall. It would be difficult, very difficult, to get anyone upstairs through the dining-room and passages frequented by all the household. How would it be best to do it? Already the prim waiting woman of thirty years' standing had all her faculties stirred into action, and was as shifty and full of expedients as any *soubrette* on the stage.

Very different were the feelings of her mistress standing there in the dimness of the old hall, her frame thrilling and her heart aching with the appeal which her brother had made to her, out of a silence which for more than a dozen years had been unbroken as that of the grave. She could scarcely believe yet that she had seen his very handwriting and read words which came straight from him and were signed by his now

name. The children, who crouched together frightened by the darkness, were as phantoms to her, like a dream about which she had just got into the stage of doubt. Till now it had been all real to her, as dreams appear at first. But now she stood, closing the door in the stillness of the evening, which, still as it was, was full of curiosity and questioning, and prying eyes, and asked herself if these little figures were real or inventions of her fancy. Real children of her living brother—was it true, was it possible? They were awestricken by the gathering dusk, by the strange half-empty room, by the dim circle of the unknown which surrounded them on every side. The nurse had put herself upon a chair on the edge of the carpet, where she sat holding the little boy on her knee, while little Lilius, who had backed slowly towards this one familiar figure, stood leaning against her, clutching her also with one hand, though she concealed instinctively this sign of fear. The boy withdrew the wondering whiteness of his face from the nurse's shoulder now and then to give a frightened, fascinated look round, then buried it again in a dumb trance of dismay and terror, too frightened to cry. What was to be done with these frightened children and the strange woman to whom they clung? She could not keep them here to send them wild with alarm. They wanted soft beds, warm fires, cheerful lights, food and comfort, and they had come to seek it in the only house in the world which was closed by a curse and a vow against them. Mary Musgrave was not of the kind of woman who is easily frightened by vows or curses; there was none of the romantic folly in her which could believe in the reality of an unjust or uncalled for malediction. But she was persuaded of the reality of a thing which involved no supernatural mysteries, the obstinacy of her father's mind, and his determination to hold by the verdict he had given. Years move and change everything, even the hills and the seas—but not the narrow mind of an obstinate and selfish man. She did not call him by these names; he was her father and she did not judge him; but no more did she hope in him. And in this wonderful moment a whole circle of possibilities ran through her mind. She

might take them to the village; but there was danger there which seemed to her the greatest of any; or to the Parsonage, but Mr. Pen was weak and poor Emily a gossip. Could she even dare a severer penalty still, and take them somehow up stairs out of the way, and conceal them there, defying her father? In whatever way it was settled she would not desert them—but what was she to do? Miss Brown coming upon her suddenly in the dusk frightened her almost as much as the children were frightened. The want of light and the strangeness of the crisis combined made every new figure like a ghost.

"Yes, I sent for you. I am in—difficulty, Martha. These children have just come—the children of a friend—"

It occurred to her all at once that here was a way of escape; she might call them some one's children who had no need of any kindness from the Musgraves; and in that case the Squire's hospitality would be full and liberal as heart could desire.

"Dear me," said Miss Brown, with seeming innocence. "How strange! to bring a little lady and gentleman without any warning. But I'll go and give orders, ma'am; there are plenty of rooms vacant, there need not be any difficulty—"

Miss Musgrave caught her by the arm.

"What I want for the moment is light, and some food *here*. Bring me the lamp I always use. No, not Eastwood; never mind Eastwood. I want you to bring it, they will be less afraid in the light."

"There is a fire in the dining-room, ma'am, it is only a step, and Eastwood is lighting the candles; and there you can have what you like for them."

It was confidence Miss Brown wanted—nothing but confidence. With that she was ready to do anything; without it she was Miss Musgrave's respectable maid, to whom all mysteries were more or less improper. She crossed her hands firmly and waited. The room was growing darker and darker every minute, and the foreign nurse began to lose patience. She called "Madame! madame!" in a high voice; then poured forth into a stream of words, so rapid and so loud as both mistress and maid thought they had never heard spoken before. Miss

Musgrave was not a great linguist. She knew enough 'to be aware that it was Italian the woman was speaking, but that was all.

"I do not understand you, I do not understand you!" she cried in distress, going up to the little group. But as she approached the cry of a sudden accession of terror, instantly suppressed on the part of the little girl but irrepressible with the younger boy, arrested her steps. Were they afraid of her, these children? "Little Lillas," she said piteously, "be a brave child and stand by me. I cannot take you out of this cold room yet, but lights are coming and you will be taken care of. If I leave you alone for a little while will you promise me to be brave and not to be afraid?"

There was a pause, broken only by little flutterings of that nervous exhaustion which made the children so accessible to fear. Then a small voice said, dauntless, yet with a falter—

"I will stay. I will not be afraid."

"Thank God," said Mary Musgrave, to herself. The child was already a help and assistance. "Martha," she said hastily, "tell no one; they are—my brother's children—"

"Good Lord!" said Martha Brown, frightened out of her primness. "And it's dark, and there's two big boxes, and master don't know."

"That is the worst of all," said Miss Musgrave. She had never revealed this before (she thought), and she was not aware that she revealed it now. "The heir! and I must not take him into the house of his fathers. Take care of them, take care of them while I go to him. And, Martha, say nothing—not a word."

"Not if they were to cut me in pieces, Ma'am!" said Miss Brown fervently. She was too old a servant to work in the dark; but confidence restored all her faculties to her. It was not, however, in the nature of things that she should discharge her commissions without a betrayal more or less of the excitement of the emergency. "I want some milk, please," she said to the cook, "for my lady." It was only in moments of im-

portance that she so spoke of her mistress. And the very sound of her step told a tale.

"I told ye there was somethink oop," said Tom Gardener, still lingering in the kitchen.

And to see how the house brightened up, and all the servants grew alert in the flutter of this novelty! Nothing had happened at the castle for so long—they had a right to a sensation. Cook, who had been there for a long time, recounted her experience to her assistants in low tones of mystery.

"Ah, if ye'd known the place when the gentlemen was at home," said cook; "the things as happened in t'auld house—such goings on!—coming in late and early—o'er the watter and o'er the land—and the strivings that was enough to make a body flee out of their skin!" She ended with a regretful sigh for the old times. "That was life, that was!" she said.

Meanwhile Mary Musgrave came in out of the dark hall into the lighted warmth of the dining-room, where the glass and the silver shone red in the firelight. How cosy and pleasant it was there! how warm and cheerful! Just the place to comfort the children in and make them forget their miseries. The children! How easily her mind had undertaken the charge of them—the fact of their existence; already they had become the chief feature in her life. She paused to look at herself in the mirror over the mantelpiece, to smooth her hair, and put the ribbon straight at her neck. The squire was "very particular," and yet she did not remember to have had this anxious desire to be pleasant to his eyes since that day when she had crept to him to implore a reversal of his sentence. She had obtained nothing from him then; would she be more fortunate now? The color had gone out of her face, but her eyes were brighter and more resolute than usual. How her heart beat when Mr. Musgrave said, "Come in," calmly from the midst of his studies as she knocked tremblingly at the library door!

(To be continued.)

A DOG AND HIS DOINGS.

BY MAJOR W. F. BUTLER.

PART I.

FAR away, in that portion of the grim Laurentian wilderness of North America which stretches its iron belt between the more recent formation of the Bay of Hudson and the valley of the Mackenzie River, there lies a sheet of water named Deer's Lake by the old English fur-traders who first reached its shores from the estuary of the Churchill River.

It is essentially a lonely place; the rocky shores, broken into deep and quiet bays, hold a vegetation of fir and spruce trees, dwarf, rigid, and of dark sombre hue; the waves beat in monotonous cadence against the bare rocks which mark the "points" or capes between the deep indentations of the shore; and the bays are often filled with long growing reeds and waving grasses, through which the wind makes ceaseless moan, as early autumn follows with rapid footsteps the September sun.

In summer, short though it be, there are sights to be seen on this lake, filled with that rare beauty only to be found where the rain and the sun have together and alone woven the covering of the earth; for in summer there falls upon these hills the strange, unwonted beauty of saffron sunsets, lengthening out the shadows of dark pine-trees on water so still that the ripple from a wild duck's breast steals far over the surface, and gently rocks the shadowed image of the shore, and waves the motionless pine-branch on the cliff, and dies in the water-worn hollows of the old grey rocks, with an echo just audible in the great stillness of the scene; then, too, as the light of evening deepens, and the western end of some long arm of the lake yet lives in the strange contrast of dark rigid tree-tops outlined against a lustrous after-glow, there sounds over lake and shore a cry, the vivid distinctness of which startles the echoes deep into the bosom of the woods. It is the wail of the loon—a wild and lonely call that tells the shy moose in his willow lair he may rise and seek his mate; that calls the

dark-furred otter from his haunt beneath the rock to his nightly toil of fishing in the quiet pools where the fish glance like silver arrows in the moonlight; that signals to the grey owl that his time has come too, to flit amid the dusky shadows; that tells wild beast and wild bird they may set forth for feast or love or war, safe under the cover of the night, in their great home of the wilderness.

On the south shore of this lake there stands a small trading-house or "fort" of the Hudson Bay Company. It is the usual type of structure common throughout the fur country of the great north. Log-house and picket-fence, trading-store, and hut for half-breed servants, all alike built from the wood of the straight fir-tree, roofed with logs, covered with the bark of junipers, and made secure from the searching winds of winter by mud and moss stuffed tightly between the interstices of the logs.

In winter, house, fence, and hut lie deep drifted, amid snow piled high by storm; in summer dogs stretch in lazy delight upon the sloping pathway between the picket-fence and the lake shore; a boat lies up-drawn upon the beach; an Indian birch-bark canoe, turned downwards upon its face, lies near it. Far out upon the lake another canoe, a speck on the water, is seen coming from the further shore with some Indian family intent on trade; and around, over the palisades and roof-tops, in endless lines, the motionless and rigid pine-trees stand dark and changeless.

In fact, this fort at Deer's Lake differs not from a hundred other forts scattered over this great northern wilderness. Its aspect, life, people, boats, canoes, surroundings, are all the same; everything is alike here as elsewhere—everything save one item, and that one item is an important one—it is the dog. The dogs of Deer's Lake differ from other dogs in most of the forts of the great northern land.

Dogs, it is true, are fond of differing all the world over; but on this point of difference between dogs at Deer's Lake

and dogs elsewhere in the north there is a notable distinction, and it is this—that while the dogs at the many fur forts further inland, the trading forts scattered over the vast basins of the Saskatchewan, Peace, and Athabasca Rivers, are a poor and wolf-like breed, those at Deer's Lake are remarkable for possessing a strength, size, and symmetry, a uniformity of color and characteristic, stamping them at once as a distinct species which has developed into that perfection always attained by nature when in the wild state she moulds her creatures to their own wants and purposes. The dogs are, in fact, of Esquimaux breed, a species of which it will be necessary to say a few words.

Around the wide circle of the Arctic Sea, on all northern shores of Europe, Asia, and America, that extraordinary race of human beings known as Esquimaux possess a breed of dogs unequalled for the value of the assistance they afford to their human masters. The Arab has his horse, the Indian his canoe, the Libyan his camel; but in the dog the dwarfed and hardy races of the frozen north possess an auxiliary more constant, more untiring, more useful, than any other thing of animate or inanimate nature the wild world over.

From northern Norway, along the cold slopes of Lapland and the White Sea, far into that unknown region where Russia's north-east cape stands the nearest continental outpost to the pole upon the earth; down along the wintry shores of the Lena and the wild Yakoutsh waste to the Straits of Behring; and, again, into the regions of North America by the mouths of the three great rivers which seek the Arctic Ocean, until, sweeping around the wide Bay of Hudson, the line crosses to Greenland and ends on the east coast of that desolate island—all around the immense circle of this northern shore-line there is found a breed of dogs, differing in size, it is true, but closely identical in shape, habit, and characteristic.

When the scattered tribes of Esquimaux move east or west along the shores of their lonely realms, when the spring-time tells them to quit their snow-houses, and to set out upon their dreary quests of fishing, while yet the ice gives safe and ready means of travel, when early

winter closing in the dusky darkness upon the short summer sends them again to their huts, the dog is ever there to haul his load of dried fish or musk-ox meat, of oily blubber or skin, of drift wood or dried moss; of walrus-bone for spear-heads; of all the curious craft of kettle, axe, knife, arrow-head, and tent, which the Esquimaux fashions from the few rude materials flung to him by the sea, or grudgingly yielded by the inhospitable shore.

Deep-chested, broad-backed, long-woolled, clean-legged, sharp-nosed, pointed-eared, bright-eyed, with tail close curled over back in token of an everlasting good-humor towards man, and of fierce resentment to all outside dogs, the Esquimaux dog stands of his species the only animal which gives to his master the twofold service of horse and dog.

The lake called Deer's Lake, of which we have already spoken, is not many marches distant from the west shore of Hudson's Bay. Indians descending the Beaver or Churchill River can easily reach the fort which stands at its mouth, in the summer; and in winter, when the cariboo are plentiful along the belt of woods lying between Lake Athabasca and Hudson's Bay, stray parties of Indians move at times back and forward from Deer's Lake to Fort Churchill. Thus there has arisen an intercourse between the two stations, and as Fort Churchill is the most southerly point to which the Esquimaux come on the shores of the bay, it has fallen out that the dogs bartered by the Esquimaux have been carried inland to the post of Deer's Lake, and that around the palisades and huts of that remote establishment the burly forms and upraised tails of these best and truest Arctic travellers are to be seen.

Nearly a dozen years ago from this present time, an event occurred at this post of Deer's Lake which, although it received neither comment nor chronicle at the moment, is still worthy of a passing notice in this record. It was only the birth of a dog. Beyond the fact that the event took place at the time I have indicated, little more is known; indeed, it may be admitted that even that fact would for ever have remained in the limbo of unrecorded history, if an event had not occurred in the after-life

of this dog which gave prominence to his earlier existence.

It may, however, be safely presumed that the earlier stages of puppyhood were passed by this dog in circumstances of unusual felicity; doubtless the year was one of plenty, so far as white fish in the lake was concerned, or the herds of reindeer were unusually numerous in the neighboring woods; and doubtless, too, the mother of this dog was of a free and generous nature, who grudged not to her progeny a share in spoil of bone, or in the feast that followed the return of the lake-boat from the nets—an event usually watched with anxious eyes by the whole pack of dogs at a northern fur fort, who welcome with hilarious howl the grating of the keel upon the beach, sure prelude to a rich feast, if the night's yield has been propitious.

Thrown a chance wanderer in some of these remote and lonely posts in this wilderness of the north, it has often been my occupation to watch the habits of these dogs in the idle hours of their lives. Their fights and mutual jealousies, their impertinent intrusion into the provision-sheds, their wolf-like howls when the earliest streak of dawn glimmered over the eastern hills, their joy when released from harness, their sorrow when about to be placed in it, have often filled up the moments of a day spent in one of these remote spots.

I remember once, at the fort called St. John's, on the Upper Peace River, being witness to a strange conflict between the instincts of a dam to her whelps and the cravings of her own hungry nature. She had become, by some fortunate chance, the possessor of a large bone; this she had carried to a place of safety under my window, followed by her family of four puppies, just verging from the age of toddling to that of toothsome tendencies. The mother's gaunt sides and staring bones showed that the progeny were no easy burden to her, and their rounded and chubby figures contrasted strongly with her angular outline.

Nevertheless, the four youthful haulers seemed to be of opinion that it was wiser for them to claim a share in the bone now under discussion than to await a future moment when its sustenance might be derived second-hand from their maternal relative. They growled and

tugged at the bone almost in the mouth of their hungry nurse, and rolled over each other and over the bone in a mixture of infantile ferocity and fun most laughable to look at. The expression of their mother's face was one of hungry perplexity. Here was a clear case of injustice on the part of the offspring: they still looked to her for support, and yet they also sought to share her support—this precious bone; nay, they even presumed upon her feelings to rush in and take it by force, knowing that from her alone could they secure it without being severely bitten. Her only resource was in flight: raising the bone in her mouth, she tried to get away from her family to eat it alone; but they invariably toddled after her to renew again their importunities. A bright idea seemed suddenly to strike the brain of one of the puppies: he relinquished his attempts at the bone and devoted himself to his more legitimate province of deriving nourishment from his mother; but I could not determine whether this manoeuvre was only a ruse to detain her for the benefit of his three brethren yet struggling for the bone, or simply an effort to improve the occasion with reference to a "square meal" on his own account.

Arguing from these and similar scenes witnessed among dogs generally in the north, and having regard to the excellent proportion attained by the dog whose history began at Deer's Lake, I can safely aver that his mother must have been of a free and generous nature to him in his early youth. But whatever may have been the conditions of that earlier life, it must suffice for us to know that four winters of hauling, and four summers of repose had passed over him ere fate determined that the name of the dog and his doings should fall upon the ear of the big outside world.

It was the winter of 1871.

For three months the great northern forest had lain prone beneath snow, ice, and bitter cold. Many a storm had swept over the immense waste, piling the dry snow into huge drifts by the banks of frozen rivers; silting up willow islands, covering the wreck of fallen vegetation in the dark pine woods, and moaning away into endless space over lake, and plain, and forest.

The scene is in the neighborhood of the fur fort called Cumberland, on the shore of Pine Island Lake, near the lower Saskatchewan River. It is the hour of sunrise. Along the white bed of a tortuous river, fast frozen beneath five feet of ice, and deep drifted in snow, came three dog-trains; twelve dogs in all. Four men accompany or follow these trains in the rapid stride and long swing of snow-shoe walking. The bells upon the dog-harness ring and jangle clearly in the keen frosty air, for the thermometer is standing at some twenty-five degrees below zero. A white steam rises from the breaths of dogs and men, and great icicles hang on the beards of the travellers, whose fur caps are frosted over with ice dust fine as flour.

The pace is about four and a half miles an hour, and its rapid movement has done more to make the blood course freely through their bodies than capôte or mittaine, or fur cap could ever achieve on such a morning. Suddenly, from a bend in the river channel, there became visible on the left shore a solitary Indian wigwam; a thin column of smoke issues from the opening in the pointed roof, a dog barks vigorously toward the new-comers from the bank in front; all at once the train-dogs quicken their pace to a sharp trot, the men break into a run, and in a few minutes the sledges are abreast of the wigwam; then the leading dogs make a wild lurch to leave the river and ascend the bank, with a view to a rest, and perhaps to a spell out of harness; but that is not to be, and a loud and stern word of command from the leading driver makes them crouch together in the dry yielding snow in the centre of the river.

The three men ascend the river bank and enter, one by one, on their hands and knees, the low opening of the Indian wigwam. The scene inside is a curious one. Through the opening in the roof the light comes fully in; a fire is burning on the ground in the centre; its smoke, only half escaping through the aperture above, hangs in the upper part of the tent, and it is only by sitting on the ground that one can escape its influence and see with ease and comfort. At the further side of the fire from the doorway sits an old withered, wrinkled Indian, who scarcely regards the new-

comers, but continues to sing a low, monotonous song; a young woman and two children are squatted near.

The new-comers sit on some dried rushes around the fire; the old man, having shaken hands with them one by one, continues his dirge. The leader of the party asks his followers what the old man is singing about. "About the death of his son," they reply. "His son, this woman's husband, and the father of these two children, died here two days since; and last night a dog-train came from the fort (Cumberland), and took the body away for burial in the graveyard there."

"And the man, who was he? What did he die of?" asked the leader of the party.

"He was a French half-breed who had adopted the Indian life, and he lived here in this wigwam, hunting for the family. He died of cold caught in chasing a black fox, which had carried away one of his traps. He was a good hunter."

The story of this man's life and death was soon told; meantime the Indian continued his song.

"What is he singing?"

"He says that he is old and cannot hunt; that his support has gone from him; that it would be better if he went too."

A few minutes later, the party left the wigwam and continued their journey along the frozen river. There was now a trail on the ice, and the dogs followed it with rapid steps. Soon the river opened upon a large lake; the sleds bounded briskly over the hard drifted surface of the snow, which bore the trace of a recent dog-train upon it; then there appeared, far off in front, the misty outline of buildings grouped together on the dim opposite shore of the lake. Quicker went the dogs, faster beat and clanged the bells, until, leaving the ice, the dogs dragged their loads into an irregular open space surrounded by wooden houses, in the centre of which other dogs and men stood watching the new-comers.

Prominent amongst the dogs, a large burly-figured, bushy-tailed animal at once caught the eye; he appeared to be intent upon combining two almost impossible lines of conduct in one and the

same moment; namely, to ingratiate himself into the good graces of the men of the party just come, and to intimidate by a series of quick but ferocious "asides" the new dogs; thus he presented a singular contrast of solicitude and swagger, the upturned tail wagged to man and shook menace to beast almost at the same instant; the face by turns glared and grimaced, and the ground was trod by a sort of, light springy motion, which indicated a desire to give his paw to any body who might take the trouble to ask for it, or to show his jaw to any and every dog who looked in his direction.

There have been ingenious German artists who have succeeded in producing similar effects in the portraits of some of their great national heroes. Looked at from one side, the picture presents to the beholder the graceful outline of a ballet dancer, or of a rustic maiden; regarded from the front, the lowering lineaments of Bismarck, the wrinkled ferocity of Moltke, or the Mosaic ramrodism of the German Emperor's face and figure strike grimly upon the eye. This, however, must be what is termed "high art"—in the case of the bushy-tailed dog at Cumberland it can only be regarded as low nature. But to proceed.

The general appearance of this dog and his grotesque goings-on quickly caught the eye of the leader of the party, and inquiries followed as to his name and ownership; these were soon answered. The dog was of pure Husky breed; he was born at Deer's Lake, three hundred miles further north; his owner was one Isbister, a well-known trapper, and traveller over a wide extent of country; he was but just returned from bearing his part in hauling the dead body of Joe Miller from the Indian wigwam; his name was "Cerf Volant," or the Flying Deer.

Thus at Cumberland, on Pine Island Lake, was first introduced to the writer of these pages an animal destined hereafter to fill a prominent part in long and varied scenes of toil and travel. And now, having brought to a point of contact at the fur fort called Cumberland the life of this dog and of his future owner, it will be better for the smoothness of the narrative, and the truer weav-

ing together of two threads of life, to continue our story in the personal pronoun.

I became the possessor of Cerf Volant. He was the "foregoer," or leader, of three other dogs, who bore the names of Tigre, Muskeymote, and Cariboo; the first, a good and trusty hauler, the two others wild and shaggy dogs, of savage disposition and unkempt aspect.

The financial operation which resulted in transferring these dogs to my possession was of a nature to surpass all other operations of the kind ever known in the north—in other words, more money was on this occasion asked and given for this train of four dogs than the oldest inhabitant had ever remembered in similar transactions; but had that sum been three times what it was, and had that triple amount been demanded for the single "foregoer," Cerf Volant, exclusive of his three comrades, it would still have been an eligible investment, to be repaid afterwards with the interest of an amount of true and faithful service impossible to overestimate.

The long journey which had begun three months earlier, was, at the time we write of, drawing to a close. Five hundred miles yet remained to be traversed ere the point from which I had started in October would be again reached, and this distance, lying as it did for the most part over vast stretches of frozen lake, promised to be traversible without greater difficulty than that of cold and hardship; for over these large lakes the very force and violence of the winds have made the mere labor of travel comparatively easy. The snow closely packed upon the ice forms a hardened surface, upon which the snow-shoe leaves but scant impression, and the dogs and sleds run lightly over the smooth and dazzling highway which cold and storm have laid across the vast spaces of these inland seas.

It was the 31st of January when I set out with my new train for this last stage of five hundred miles. The cold was very great; the country as desolate as frozen swamp, spreading in endless succession for eighty miles' distance, could make it; but the story of that journey has been already told in another place, and its introduction here is only necessary in order to carry on the history of

the "foregoing" dog into times and through events which have found no record.

Twenty days passed away; the marsh and the lakes had been crossed. There had been days of bitter blast, and nights of still, cold rigor, and cosy camps on islands drifted deep in snow, where the tall pine-tree stood to shadow back the glow of the fire lit beneath it, and to shelter the wayfarers whose passing footsteps had broken, for one short night, the quiet of these lonely isles.

And now it was all over! I had got back again to house and fireside, bed and board. True, it was only four months since I had left these adjuncts of civilisation, but time in those matters has only a relative significance, and distance had so lengthened out the vista of these hundred and twenty days, that it seemed half a life-time had been spent in the wilderness.

I took up my quarters in an unoccupied house lying about six miles from Fort Garry, in order to quickly complete some official reports relative to my journey. I had as attendant an old pensioner; as companions my four dogs.

The pensioner dwelt in the kitchen, the dogs occupied a large stable. I had the rest of the house to myself. When not suffering from a too liberal allowance of Hudson's Bay rum, the pensioner was wont to devote his leisure moments in the evenings to endeavoring to elucidate, with my assistance, some problems that perplexed him.

He had quitted the army and left England before the era of the introduction of electricity, and "them themagruffs," as he used to term the telegraph, was ever a fruitful source of conversation with him. For the rest, he cooked for me, and for the dogs, kept my fire alight, and fulfilled that truest of all services by leaving me to myself as often as I pleased. At times I gave the dogs a run over the snow, or put them in harness and ran them to the fort for exercise or business.

But even the border civilisation of the Red River Settlement had many temptations for Cerf Volant and his comrades. There were some farmsteads in the neighborhood of my house, and ducks and turkeys and a cock were things as completely beyond the comprehensions of

my team as the telegraph had been puzzling to my attendant; with this difference, however—that while the old soldier lost his head over the mystery of the electric wire, the cock and his companions invariably lost their heads to my team's inability to comprehend their true functions in civilisation.

More than once was the mid-day scamper up the roadway in front of my house attended with wild scenes of flutter and confusion in strawyard and byre into which my dogs had penetrated, and more than once were my repeated calls by name of each dog answered by the reappearance of these "missing links" between civilisation and savagery in a state of hilarious joy over the capture and decapitation of these puzzling poultry.

At last the time came to quit the settlement for other and larger scenes of civilisation, into which the dogs could not go.

A Hudson's Bay officer about to start for Norway House, on the north shore of Lake Winnipeg, became the purchaser of the team and cariole, and Cerf Volant passed from my possession to resume his old place in a Hudson's Bay fort. I parted from the dog with keen regret, he stood alone among his comrades not only as a hauler, but as a friend. The work of our lives is the real test of our natures. Any man can be jolly or good-tempered at his dinner, or during his leisure moments; but if the daily routine of his work leaves no frown upon his nature, if his heart does not close or harden beneath the hourly hammering of his toil, then you may swear there lurks no cranny of discontent in his being—there is no nook of selfishness in his heart. So was it with this dog. He alone was ever jolly at his post; he hauled through all the hours of a long day without slack of collar trace, or stint of effort, but the ear was ever ready to turn responsive to a kindly call, the tail to wag a welcome within the tight-drawn traces of his toil; and when the evening came, and the collar was laid aside, and the last strap unbuckled, not lighter did he shake from him the dry powdery snow than the vestiges of his work.

Companion in the camp, faithful servant during the day—what more could man desire?

The day of departure came. I drove through the single street of Winnipeg village on my way south : at the entrance to the town, at the spot where, on the night of my first arrival eight months earlier, I had parted from my guide, to pursue alone the way to the friendly Indian settlement, I saw my dog-train coming at a brisk pace along the frozen road ; Cerf Volant was leading, a half-breed driver

ran behind the sled. "Cerf Volant, old dog !" I called out. He turned in his harness at the well-known voice, there was a crack of the half-breed's whip, like a pistol-shot, and the dog, realising that a mighty change had passed over his life and fortunes, bent his head to the collar and trotted on bravely towards the north. The last link of the lone spaces was gone!—*Good Words.*

MORBEGNO.

THERE is a long straight road in Lombardy
Bordered with stunted trees and maize and vines,
And at its side the stealthy Adda slides,
Spreading the poison of its humid breath ;
While dismal mists like wandering spectres steal
From rush-grown marshes and from osier beds,
And lay their cruel hands on human life,
Strangling its joy with clutch of fell disease.

We travelled on this road one summer day,
And at Morbegno rested for an hour ;
The deadly mists hung close around the town,
The faded town, with houses gaunt and old,
And frescoes peeling from the mildewed walls,
And trouble-smitten people in the streets.
I see them still—those piteous haunting eyes
That gaze out wistfully from life-long woe,
The vacant smile, the sad distorted face,
The wrinkled skin, the aimless feeble hands.

And through the mists there came a sound of bells,
In chimes that still had sweetness of their own,
But yet had lost the clue which guided them,
And had forgotten what they used to say

O sweet, sad bells ! O never-ended chime !
My voice went forth to God with those wild notes—
"Hast Thou, indeed, made all men here for naught ?
Do they not cry aloud these souls of Thine
Whom Thou hast formed to suffer till they die ?
What have they done, these weary stricken ones,
That age to age should hand their misery down,
One generation sending on Thy curse

To that which follows in its hopeless track ?
I call Thee Father, and in Thy great Name
Thy Spirit binds to mine in bonds of love
All human beings on this world of Thine :

Brothers and sisters Thou hast made us, Lord.
I cannot bear the woe of these I love,
Let me but suffer for them. O my God,
Gather Thy wrath, Thy vengeance in one cup,
And pour it out on me, but give them joy.

"Of old it 'was expedient one should die,
And that all should not perish.' Let it be
Thy will once more, and bid the plague be stayed.
See, in their misery they kneel to Thee,
These men and women who must bear Thy curse,

See how they gather round the wayside shrine
 And lift their weary hands to Him who hangs
 Upon the Cross, and comforts human hearts
 By having known the worst of human pain.
 The 'Man of Sorrows' is their only God;
 What should they know of One who reigns alone
 Above all suffering and human want,
 In endless plenitude of joy unknown
 To them by anything which life can show?"

Such my wild prayer, and in my soul I heard
 An answer wrought of pain and faith and hope.

"O foolish human heart that wrongest Me,
 How long shall I bear with you, yea, how long
 Suffer you still to take My name in vain?
 How can those half-blind eyes that scan the gloom
 See anything aright of all My work,
 And seeing not, why judge Me in the dark?
 Perchance some day the clearer light will show
 That pain, disease, and grief are gifts as great
 As strength and health and joy, which seem so dear.
 Perchance some day in gazing back on life,
 From some high standing-place much further on,
 Your soul will give its verdict. 'Even this,
 This place of doom in all its dreariness
 Was nearer to the blessed light of God
 Than I who pitied, and who prayed for it,'—
 And you shall envy those who suffered here,
 Who worked God's will through loathsome disease,
 And helped the world's redemption by their pain."

I bowed my head, my heart was humbled now.
 "Father, forgive me. Like Morbegno's bells
 The ending of my cry is lost in doubt,
 Accept once more that plea made long ago
 By One who trusted Thee. O, not alone
 For those He saw, Christ prayed His latest prayer,
 We know not what we do, or say, or think.
 Father, forgive us. Let Thy will be done."—
 And if it be that human misery
 Is working out God's will, ye suff'ring ones,
 Bear on through all things, for your rich reward
 Is greater than our human hearts can grasp,
 Is deeper than our finite souls can reach.
 O weary men, your pain is dear to God;
 O women, who must bring your children forth
 Knowing them born to lives of misery,
 Take comfort, the Eternal Will is sweet,
 And ye are working out its large behest
 Though life is bitter. Children, with those eyes
 So full of sorrow, and of coming doom,
 Our Father loves you, and the end is great
 Though hidden far away from human sight.
 Brothers and sisters, I could almost think
 I hear the secret told which no man knows,
 When I recall those patient weary eyes,
 That gaze out wistfully on life-long woe.
 And God stays in Morbegno till the end,
 While we pass on to Como and forget.

Macmillan's Magazine.

AUTOMATISM AND EVOLUTION.

BY CHARLES ELAM, M.D.

PART III.

THE superiority of the Evolution hypothesis over every other ontological theory is, according to Haeckel, chiefly manifest in this,—that by its means alone we are able to give a mechanical explanation of the most complicated organic phenomena.

"In fact," he continues, "such events as the origin and formation of the organs of the senses present to the eye of the understanding, guided by the light of Evolution, no more difficulties than the explanation of any ordinary physical processes, such as earthquakes, winds, or tides. By the same light, we arrive at the very weighty conviction, that all the natural bodies with which we are acquainted are *equally living*; and that the distinction which has been held as existing between the living and the dead, does not really exist. When a stone which is thrown into the air falls again to the earth according to definite laws; when a crystal is formed from a saline fluid; when sulphur and mercury unite to form cinnabar; these facts are neither more nor less mechanical life-phenomena than the growth and flowering of plants, than the propagation and sensory faculties of animals, or the perceptions and intelligence of man."*

This is a most attractive programme, and one full of interest and promise: unfortunately nothing is effected here or elsewhere towards completing the "explanation." It is asserted again and again that life is but mechanical force, and that soul and spirit and thought are but higher manifestations of the same; but no attempt, even the feeblest, is ever made to justify the wild assumption, or to show how mechanical force can be conceived as representing either life or thought.

Indeed, Evolution is charged with many burdens, too heavy and grievous to be borne; and it breaks down utterly under the weight of them. Guided still by the light of this doctrine, we are supposed not only to be able to trace clearly the past history and present condition of man; but even to predict, and with still greater certainty, if possible, his future progress. Mr. Herbert Spencer, in his "Social Statics" (p. 79), predicts the

"evanescence of evil," and the consequent perfecting of man's nature, as an inevitable corollary of the laws of evolution, as follows:—

"All imperfection is unfitness to the conditions of existence.

"This unfitness must consist either in having a faculty or faculties in excess, or in having a faculty or faculties deficient, or in both.

"A faculty in excess is one which the conditions of existence do not afford full exercise to; and a faculty that is deficient is one from which the conditions of existence demand more than it can perform.

"But it is an essential principle of life that a faculty to which circumstances do not allow full exercise diminishes, and that a faculty on which circumstances make excessive demands increases.

"And so long as this excess and all this deficiency continue, there must continue decrease on the one hand, and growth on the other.

"Finally, all excess and deficiency must disappear—that is, all imperfection must disappear.

"Thus the ultimate development of the ideal man is logically certain, . . . as certain as any conclusion in which we place the most implicit faith—for instance, that all men will die. . . . Progress . . . is not an accident, but a necessity. . . . As surely as there is any efficacy in educational culture, or any meaning in such terms as habit, custom, practice, so surely must the human faculties be moulded into complete fitness for the social state, so surely must the things we call evil and immorality disappear, so surely must man become perfect."

This is a fair instance of the statements made and the arguments used in the interests of the Evolution hypothesis; and as such, it merits some brief notice. Whatever may be man's destiny in the future, nothing can be more certain than that he will not be perfected by any evanescence of evil effected as here supposed. For it is in no sense to be received as true that "a faculty, on which circumstances make excessive demands, increases." A faculty duly exercised, in accordance with individual and social requirements, improves, within certain definite limits; but a faculty on which excessive demands are made, inevitably deteriorates or is lost entirely. The eye, the ear, the brain, when moderately exercised, improve as to function;

* *Natürliche Schöpfungsgeschichte*, by Dr. Ernst Haeckel, 6th edition, p. 21.

if *excessive* demands are made upon them, their functions fail; and if these demands be continued, disorganization often ensues. Digestion is certainly not improved by excessive demands on its powers,—nor the circulation, nor any other physiological function.

The history of man, whether physical or general, affords as little support to this doctrine of perfectibility, as does physiology. If certain nations or communities have advanced towards a higher state of physical condition, of social aggregation, or of mental and moral cultivation, and are therefore to be considered as illustrations of the law that "all imperfection must disappear," it can scarcely be contended that those nations or communities which have either remained stationary or have degenerated are illustrations of the same law. Yet history abounds with such instances. In some Eastern nations, notably in China, there is comparatively little change of any kind within historic periods; probably no one would be likely to see there any indications of the evanescence of evil; and yet China and its dependencies may be supposed to contain nearly half, certainly more than one-third, of the population of the earth. It is not necessary to enter into any details as to degenerations; their history is the history of all nations that have risen and fallen again; where "unfitness to the conditions of existence" has resulted in decay rather than in progress.

This digression from the main subject of this inquiry has been introduced with the object of showing what care it is necessary to exercise in examining doctrines like these, set forth with much confident use of language, before accepting them as valid. Further illustrations will occur as we proceed.

In the preceding paper * the evidence for the first of the three propositions concerning the origin of organic forms was investigated—viz., "*That the earliest organisms were the natural product of the interactions of ordinary inorganic matter and force.*" It appeared to be a result of the inquiry that neither observation, experiment, nor reason, gave any testimony in favor of such a view; and that life was in all cases due either to

antecedent life, or to a power or force from without that was not identical, nor correlated, with the ordinary physical forces. The two remaining propositions which now claim attention are more conveniently combined in one for discussion, and may be thus formulated:—"That all the forms of animal and vegetable life, including man himself, have been successively and gradually developed from the earliest and simplest organisms."

A casual survey of the vegetable and animal world exhibits to the inquirer an infinite number of forms, having almost every conceivable variety of general aspect and attribute; whilst a closer investigation shows certain relationships of type and function to subsist amongst certain members. Individuals are closely grouped together with such identity of structure, and such constancy of character derived from parent to offspring, as to be ranked as species. Various species present such analogies one to the other as to be classed under more extended heads, as *genera*. Genera, again, that are allied by certain affinities, are united to form natural orders; and these are grouped again, according to such general characters as they may possess in common, into classes and sub-kingdoms. Thus all the varieties of our domestic dog or cat are so alike in essential structure, that they are respectively considered as distinct *species*. But the dog has many points of resemblance to the wolf, the dingo, &c.; and the cat has similar relations to the lion, tiger, and puma. The allies of the dog are therefore united to form a *family*, called *Canis*; and those of the cat are similarly united into the family *Felis*. But the *Canidae* and the *Felidae* are again allied by important points of structure, food, and habits to each other and to the bears (*Ursidae*), martens (*Mustelidae*), and seals (*Phocidae*); and these families are aggregated to constitute the natural order of the CARNIVORA. These form one of the great divisions of the class MAMMALIA—a section of the great sub-kingdom of the VERTEBRATA.

Up to a comparatively recent period, the majority of naturalists held, with regard to these divisions, that only the members of what were called *species* (such as were fertile together, and had fertile offspring), had any true alliance

* See CONTEMPORARY REVIEW for October.

any blood-relationship; and that a family, a genus, an order, or a class, was simply an *ens rationis*, a mental classification for convenience only.

But so early * as 1796, Goethe alluded to the development of the higher animals, and man himself, from lower forms of life; and in 1807 he somewhat expanded the idea, with references to embryology. He was soon followed by Oken, who, as we have before seen, claims "a kind of inspiration," but whose inflated dogmatism presents few tangible points for either intelligent acquiescence or dissent. His doctrine as to organisms is as follows: †—

(900) "Every organic has issued out of mucus."

(901) "The primary mucus out of which everything organic has been created is the sea-mucus."

(905) "The sea-mucus, as well as the salt, is produced by the light. Light shines upon the water, and it is salted. Light shines upon the salted sea, and it lives."

(906) "All life is from the sea, none from the continent."

(912) "The first organic forms, whether plants or animals, emerged from the shallow parts of the sea."

(913) "Man also is a child of the warm and shallow parts of the sea in the neighborhood of the land."

(930) "The primary organic is a mucus point."

(934) "The first organic points are vesicles."

(958) "No organism has been created of larger size than an infusorial point. No organism is, nor has one ever been, created which is not microscopic."

(959) "Whatever is larger has not been created, but developed."

(960) "Man has not been created, but developed."

Oken, it will be seen, allows the existence of a Creator, whose function is to create microscopic points. Philosophers are wiser now. Lamarck followed in 1815 with some daring speculations, which I venture to think were indefinitely more philosophical ‡ than any of

* De Maillet's *Telliamed* was published almost fifty years before, in 1748; but except as indicating some belief in the variability of species, it requires little notice as a philosophical work.

† The figures refer to the sections in the Ray Society's edition of Oken's *Physio-Philosophy*.

‡ Lamarck's account of the development of the giraffe's long neck is infinitely more practical and probable than Mr. Darwin's; as well as his general, though perhaps somewhat vague, ideas of the production of various other structures by means of attempted and increased function, or desire for action.

the theories of evolution which have been propounded since that time, inasmuch as they had some basis in physiological truth. But it is unnecessary now to notice these doctrines at any length, since it is at the present time generally believed that "there is but one hypothesis as to the origin of species of animals in general which has any scientific existence—that propounded by Mr. Darwin."* That hypothesis is too well known to require any extended introduction, but may be briefly stated thus:—Owing to the high geometrical rate of increase of each species there is a constant struggle for life going on amongst all living creatures, in which struggle the "weakest go to the wall," and the strongest, that is, the "favored races," survive. These favored races are so favored in virtue of their having been born (in obedience to chance, or some law the conditions of which are unknown) with a structure in so far differing from that of their species, as to afford them an advantage, however slight, over their brethren in the said struggle. This is innate variability; and when a variation occurs, thus enabling its possessor to survive where others die, there is a prospect of a race being formed with this peculiarity, which, slowly augmenting for thousands of generations, at last gives character to a new species. And the slow accumulation, through countless ages, of similar modifications, by natural selection, forms distinct genera and orders. The same powers which we daily see producing what we call *varieties* are on this theory capable of producing *species* in longer periods, and in still more extended periods, genera, orders, and classes. There are thus three essential elements in this theory—variability, struggle for existence, and natural selection—and by means of these, it is supposed that, beginning with the *monera* (which was evolved from inorganic matter), we have in the course of long ages obtained all the forms of life that have ever appeared on our globe, including man, without the "intrusion" of any creative power.

It is not my intention to attempt any detailed investigation of these views. This has been done so often by far abler hands than mine, that it would appear as

* Professor Huxley's *Man's Place in Nature*, p. 106.

though nothing more could be said by friend or foe without mere repetition. What can be done by a calm and highly cultivated critical faculty, a profound knowledge of natural history and of all biological science, and a clear logical reason, to refute the fallacies of natural selection, has been done by Mr. St. George Mivart in his "Genesis of Species," and later in his "Lessons from Nature."* But the theory has a source of vitality which does not lie in the domain of facts or reason, and will therefore doubtless survive for a time.

There are, however, a few general considerations upon which I think due stress has not been laid, tending to indicate that this hypothesis "does not really exist, although it may seem to do so," as was said by a distinguished writer, concerning another theory—in other words, that it has no scientific basis. The first is this—that the hypothesis of natural selection is not *directly* supported by any single fact in the whole range of natural history or palæontology; but that on the other hand every fact which is known with any certainty in those sciences, so far as it bears upon natural selection, directly opposes it. In adducing evidence of these positions I will neither give my own observations, nor those of any opponent of the theory, but will call upon its friends and supporters to bear their testimony, first, as to the evidence for the succession of life upon the earth from lower to higher forms; and, secondly, as to the existence of any instance of conversion of one species into another.

Professor Huxley, whose authority in all matters of natural history and palæontology is indisputable, and who cannot be suspected of any antagonism to Evolution in general, or to Mr. Darwin's views in particular, thus writes in 1862:—

"What, then, does an impartial survey of the positively ascertained truths of palæontology testify in relation to the common doc-

* Mr. Mivart's final verdict is as follows:—"With regard to the conception as now put forward by Mr. Darwin, I cannot truly characterize it but by an epithet which I employ with great reluctance. I weigh my words, and have present to my mind the many distinguished naturalists who have accepted the notion, and yet I cannot hesitate to call it a *puerile hypothesis*."—*Lessons from Nature*, p. 300.

trines of progressive modification, which suppose that modification to have taken place by a necessary progress from more to less embryonic forms, or from more to less generalized types, within the limits of the period represented by the fossiliferous rocks?

"It negatives those doctrines, for it either shows us no evidence of such modification, or demonstrates it to have been very slight; and as to the nature of that modification, it yields no evidence whatsoever that the earlier members of any long-continued group were more generalized in structure than the later ones. . . . Obviously if the earliest fossiliferous rocks now known are coeval with the commencement of life, and if their contents give us any just conception of the nature and extent of the earliest fauna and flora, the insignificant amount of modification which can be demonstrated to have taken place in any one group of animals or plants is quite incompatible with the hypothesis that all living forms are the results of a necessary process of progressive development, entirely comprised within the time represented by the fossiliferous rocks.

"Contrariwise, any admissible hypothesis of progressive modification must be compatible with persistence without progression through indefinite periods."*

This momentous judgment was somewhat revised in the anniversary address to the Geological Society in 1870. It was fully confirmed "so far as the *invertebrata* and lower *vertebrata* are concerned;" but it was to some extent modified in reference to the higher *vertebrata*, where there seemed to be "a clear balance in favor of the evolution of living forms one from another"—this with sundry qualifications. The learned writer gives it also as his opinion that should such an hypothesis as that of progressive modification "eventually be proved to be true," *the only way in which it can be demonstrated will be "by observation and experiment upon the existing forms of life."*†

With regard to the second point in question, the transmutation of species, the same authority writes thus:—

"After much consideration, and with assuredly no bias against Mr. Darwin's views, it is our clear conviction that as the evidence stands it is not absolutely proven that a group of animals, having all the characters exhibited by species in nature, has ever been originated by selection, whether artificial or natural."‡

This was written in 1860; it was confirmed in 1863, in the essay on "Man's

* Essay on Persistent Types of Life, in Lay Sermons, p. 225.

† Ibid. p. 226. ‡ Lay Sermons, &c., p. 295.

Place in Nature;" and up to the present time the evidence stands exactly where it did; observation and experiment alike having hitherto failed to make evident the slightest approach towards specific transmutation. Notwithstanding which, Professor Huxley now declares that Evolution, which was once "a matter of speculation and argument," has now "become a matter of fact and history. The history of Evolution, as a matter of fact, is now distinctly traceable. We *know* it has happened, and what remains is the subordinate question of how it happened."*

Again, on the other hand, it has been clearly demonstrated that certain *specific* forms of life have remained absolutely unchanged during immeasurable periods of time, even since the chalk period. Professor Huxley says—

"The *Globigerina* of the present day, for example, is not different specifically from that of the chalk; and the same may be said of many other *Foraminifera*. I think it probable that critical and unprejudiced examination will show that more than one species of much higher animals have had a similar longevity; but the only example which I can at present give confidently is the snake's-head lamp-shell (*Terebratulina caput serpentis*), which lives in our English seas, and abounded (as *Terebratulina striata* of authors) in the chalk."†

Failing any direct support from palæontology, or from the phenomena of the now-living world, Mr. Darwin's theory can only claim acceptance in so far as it can be shown to be probable from the operation of the three principles of variation, struggle for existence, and natural selection. Whether these are really living and acting principles, or whether they are mere names for non-existences, is the question now to be discussed.

1. Does *specific* variability exist in nature? The answer to this question would be readily given in the affirmative by a majority of living naturalists; and yet if anything whatever is amenable to proof by observation, experiment, or reason, it can be clearly proved that the answer should be negative.

It needs no accumulation of instances to show that animals vary in form, color,

and generally in what may be called structure. Probably no one animal was ever exactly like another. Any boy who has kept rabbits, pigeons, dogs, cats, or any animals whatever, is as familiar with certain facts of variation as the most learned naturalist. The *causes* of variation are obscure,—its limits are undefined structurally, but perfectly definite physiologically. It is quite true that by artificial selection the breeder of stock may "not only modify the character of his flock, but change it altogether,—he may summon into life whatever form and mould he pleases" (Youatt). It is true, as Lord Somerville observes, concerning the breeders of sheep, that "it would seem as though they had chalked out upon a wall a form perfect in itself, and then had given it existence." But these, and all the instances that can be adduced (and they are innumerable), are the most convincing and irresistible arguments *against specific variability*. For whilst we can vary form, color, and structure, indefinitely, the specific physiological characters remain always and absolutely the same. The sheep is always a sheep, the dog is always a dog, the rabbit is always a rabbit, even if we succeed in varying their form and appearance until they are almost unrecognizable as such. The physiological characters, as marked by fertility, are absolutely constant; no variation in this respect, to even the slightest extent, has ever been observed in nature, or developed by art.* To suppose that it can ever begin to be otherwise, is merely an unwarranted conjecture, such as would be rejected summarily in any other science. If any biological position can be established beyond doubt, it is this, that indefinite structural variability, with absolute physiological stability, must be considered as proof that specific differences are not dependent on structure alone; but that they are due to a special endowment not to be traced to the "molecular possibilities of protoplasm."

* "Our acceptance of the Darwinian hypothesis must be provisional so long as one link in the chain of evidence is wanting; and so long as all the animals and plants certainly produced by selective breeding from a common stock are fertile, and their progeny are fertile with one another, *that link will be wanting*."—*Man's Place in Nature*, p. 107.

* Address at Buffalo, August 25th. Reported in the *Times* of September 14, 1876.

† On a Piece of Chalk: An Address delivered in 1868, republished in 1874. Lay Sermons, p. 198.

A species presents two groups of qualities:—A (morphological or structural), and B (physiological or functional). With such certainty as attaches to any of our knowledge, we know that A varies constantly, and within very wide limits; with exactly the same certainty we know that amidst all these variations B remains absolutely constant. The inevitable corollary of this proposition is that B (mathematically speaking) is not a function of A; in physiological language, that *function* is not essentially dependent upon *structure*. This truth meets us everywhere in biological research.

By the use of this method, we are compelled to recognize B as indefinitely more important than A, as being a constant quantity, whereas the latter is indefinitely variable. If we are told that our classifications are founded necessarily upon A, it may be replied, without any intention of epigram, "So much the worse for the classification;" for this, to be of any value, should be founded upon constant elements. The truth is, however, that variation occurs chiefly in *non-essential* particulars, and has no more effect in altering specific nature, than allowing a man's hair and beard to grow has upon his personal individuality.

Furthermore, there is an entire absence of evidence of any "*favorable variation*" ever having occurred; and there is an utter vagueness in even surmising what kind of variation might really be favorable in itself, without entailing unfavorable results in its necessary accompaniments.* When we consider also that the supposed variations are so slow, and so infinitesimally minute, that it might require "a million or a hundred million generations" † to establish the characters of a "well-marked variety," we are fairly justified in hesitating to believe in any such inconceivable agencies. If any one proposed to move one of the pyramids

by shooting paper pellets at it, he might be logically right in urging that no force, however small, can be lost, and by accumulation must be effective; but we should scarcely argue the question with him.

There are two final considerations necessary to be remembered in attempting to form a judgment on this subject. The first is that "varieties" generally manifest a tendency towards *reversion* to the original type, when removed from the influence of artificial agencies. The second is this, that although our knowledge of all the circumstances connected with the formation of "races" is very imperfect, yet what we do know with any certainty *decidedly opposes* the theory of their being formed by slow and minute variations. On the contrary, all the marked instances with which we are acquainted have occurred *suddenly*, and under conditions of which no adequate explanation could be given; as in the case of the Ancon sheep. This certainly was not an example of selecting and preserving a variation favorable to the individual or to the race.

2. Is there anything in nature which can be called a "struggle for existence," within the meaning of the hypothesis? Certainly not, if by "struggle" is implied any event or combination of events, the result of which can in any way be influenced by slight individual variations. It is true that all organic beings tend to multiply at a rate which, if unchecked, would in any one instance very soon overstock the earth. The elephant is supposed to breed more slowly than any other known animal; yet at the lowest computation one pair might easily be the ancestors of fifteen millions in five centuries. As to the multiplication of the lower animals, the understanding is baffled in attempting to realize their increase. In five generations, one aphid may be the parent of 5,904,900,000 individuals, and there may be twenty generations in a year. The female flesh-fly will have 20,000 young ones; and in five days any pair of these are qualified to produce as many more; and Linnæus asserts that three flies of the *Musca vomitoria* could devour the carcase of a horse sooner than a lion. The unchecked produce of one pair of herrings or mackerel would in a very few years crowd the

* Mr. Darwin confesses to this difficulty in many places, and often uses such expressions as the following:—"It is good thus to try in our imagination to give any form some advantage over another. Probably in no single instance should we know what to do so as to succeed. It will convince us of our ignorance on the mutual relations of all organic beings; a conviction as necessary as it seems difficult to acquire."—*Origin of Species*, p. 78.

† Ibid. p. 124.

Atlantic until they had no room to move; and it would not require a century for any pair of birds, or any of our domestic animals, so to stock a continent that not an individual of any other species could exist there.

It is evident, then, that of all the countless myriads of living creatures born within any given period, by far the greater part must be destroyed; and this wholesale destruction is effected by means which absolutely preclude any idea of "struggle," as influencing the result in the slightest conceivable degree. When clouds of locusts devastate an entire district; when countless millions of aphides destroy vegetation, and are themselves helplessly swallowed up in mass by lady-birds and other enemies; when the great ant-bear destroys thousands of ants, with their dwelling, for a single repast; when the *Balenoptera* engulfs whole shoals of herrings and smaller fish for a mouthful; when thousands of small fry—shrimps, crabs, molluscs, and medusæ—disappear for each meal of the common Greenland whale; when the bear or the badger destroys and devours the nests of bees wholesale—surely in all this the most vivid imagination can see no room for "struggle," or any possibility of "survival of the fittest." For what advantage could it afford an insect that was about to be swallowed by a bird, that it possessed a thousandth fragment of some property not possessed by its fellows? What preservation against ravages of the slugs would be afforded by an "infinitesimal" difference between one weed and its neighbor? What minute difference would avail the duckling that the fox was about to carry off? These may perhaps be deemed feeble and trifling illustrations; yet it is only by bringing the principle to some such practical tests as these that its truth or probability can be recognized. It sounds at first plausible enough to say that profitable variations will naturally tend to the preservation of individuals; but when we put it to the test, and see that it is theoretically improbable, and that there is a total lack of direct evidence that such has ever been the case, we are disposed to look upon it as more sound than sense. The balance of the organic world is preserved by the order of nature, in obedience to which the stronger prey upon the weaker; and against this

law, without which nature itself would be a chaotic impossibility, there is no appeal, no resistance, no "struggle."

It must be observed, before leaving this part of the subject, that Mr. Darwin himself, beyond the general idea of struggle and survival, has no definite notion of the circumstances demanding such struggle, nor of its essential nature. The following are only a few out of innumerable illustrations that might be brought forward. In the "Origin of Species," at p. 109, it is stated that "from the high geometrical ratio of increase of all organic beings, each area is already *fully stocked* with inhabitants. &c.;" but on the next page it is said that "probably no region is as yet *fully stocked*." At p. 110 it is stated that "it is the most closely allied forms—varieties of the *same species*, and species of the *same genus*, or related genera—which, from having nearly the same structure, constitution, and habits, generally come into the severest competition with each other." Here we seem to have arrived at a general principle; but at p. 114 another view requires support incompatible with this, and we are told that "the advantages of diversification of structure, with the accompanying differences of habit and constitution, determine that the inhabitants which thus jostle each other most closely shall, as a general rule, belong to what we call *different genera and orders*." And at p. 121 (all these occurring in the same chapter, and in different parts of the same argument) we find again that the struggle "will be most severe between those forms which are *most nearly related* to each other in habits, constitution, and structure." From all which it is not unnatural to conclude that the idea of "a struggle for existence" is not to be reconciled with the observed facts of nature.

3. If there be any cogency in the foregoing considerations, the conclusion from them is inevitable, that "Natural Selection" is a mere euphuism for a negation—a happy phrase for something that is not,—representing only a casual residuum after wholesale and indiscriminate destruction. In itself it is absolutely "nothing;"* in its application as a theory to individual phenomena, it is full

* This phrase is used by Mr. St. George Mivart, in his "Lessons from Nature," p. 300.

of the most irreconcilable incoherences. Two illustrations only will suffice to show the impossibility of rationally adapting the imaginary principle of natural selection to existing facts. In Madeira there are various kinds of beetles, some having wings largely developed, some having moderate ones, and some without. It is rather amusing to see the manner in which these differences are reconciled to the theory. The large wings are "quite compatible with the action of natural selection. For when a new insect first arrived on the island, the tendency of natural selection to enlarge or reduce the wings would depend upon whether a greater number of individuals were saved by successfully battling with the winds or by giving up the attempt, and rarely, or never flying."* Then in the same page the author adds that certain considerations have made him "believe that the wingless condition of so many Madeira beetles is mainly due to the action of natural selection, but combined probably with disuse. For during thousands of successive generations each individual beetle which flew least, either from its wings having been *ever so little* less perfectly developed, or from indolent habit, will have had the best chance of surviving from not being blown out to sea; and, on the other hand, those beetles which most readily took to flight would oftenest have been blown out to sea, and thus have been destroyed"! The second instance is taken from the account of the action of natural selection upon certain blind animals in the caves of Styria and Kentucky. Natural selection has acted here by preserving blind animals, because those which had sight might be subject to "inflammation of the nictitating membrane."† But it seems that in one of the blind rats the eyes themselves are of "immense size;" and it would appear to be a most extraordinary mistake of natural selection to preserve this animal merely *because* blind, whilst its "immense" eyes still remain subject to the objectionable inflammation.

If I dwell for a brief space longer upon some of the impossibilities involved in the reception of this theory, it is because, although virtually abandoned by

its author, as will be seen presently, it still lives in the minds of many, and acts as a serious obstacle to the advance of science.

There is no principle more frequently and distinctly enunciated in Mr. Darwin's work, than that natural selection can only act by preserving and perpetuating *exceedingly minute* variations, of such a character as will enable their possessor to contend more vigorously in the struggle for life. We have already seen that there is no such struggle. But even if there were, variations so minute as are constantly insisted upon could by no possibility give their possessor any advantage. We should entirely fail to form any conception how a very slightly enlarged sebaceous follicle, a minute pimple on the nose of a fish, or a microscopic point of ossification amongst the muscles of any animal, could give its possessor any superiority over its fellows; yet by the terms of the hypothesis such and no other must have been the origin of the mammary gland; of the powerful offensive weapons of the sword-fish or saw-fish; and of locomotor organs generally amongst the higher animals. But the earliest rudiments of a gland, or other organ, of an offensive weapon, or of a limb, must have been absolutely functionless, and therefore useless to its possessor, if developed in this way; the application of the principle is therefore impossible.

The absence of transitional forms between different species has always been recognized as a serious difficulty. Professor Huxley, who is much more Darwinian than Mr. Darwin himself, says (*Lay Sermons*, p. 296) that this difficulty "has no force;" but Mr. Darwin does not fail to see how serious it is. He says:—

"Geology assuredly does not reveal any such finely-graduated organic chain; and this perhaps is the most obvious and gravest objection which can be urged against my theory. The explanation lies, as I believe, in the extreme imperfection of the geological record."*

"I do not pretend that I should ever have suspected how poor a record of the mutations of life the best preserved geological section revealed, had not the difficulty of our not discovering innumerable transitional links between the species, which appeared at the

* *Origin of Species*, p. 136. † *Ibid.* p. 137.

* *Origin of Species*, p. 280.

commencement and close of each formation, pressed so hardly on my theory." * And, "He who rejects these views on the nature (i.e., the extreme imperfection) of the geological record, will rightly reject my whole theory." †

After these plain confessions of want of support from geology as it now is, the difficulty is cut at once. Where are the transition forms connecting the species in the same formations? The answer is ready; they are not preserved—the conditions were unfavorable. "Where are the remains of those infinitely numerous organisms which must have existed long before the first bed of the Silurian system was deposited?" ‡ This question refers to the fact of finding creatures of high organization in the earliest seas, whence the supporters of "development" were obliged to suppose countless ages of development before the age of trilobites. The answer to it is equally trenchant and conclusive, "They may now all be in a metamorphosed condition, or may lie buried in the ocean." § Can Mr. Darwin fail to see that there cannot be imagined any theory of ontology too wild and monstrous to be supported by argument like this?

But geology has its tale to tell, and one which appears not only not to support, but clearly to controvert, the development theory. It never was the small and feeble species or germs that first appeared either amongst the molluscs, fish, reptiles, or mammals. Where are now the representatives of the gigantic fishes of the old red sandstone? Where are the mighty reptile tyrants of air, earth, and water of the oolite? Have they been "improved" and "preserved" into the puny representatives of the modern reptile class? Where are the ponderous monsters that shook the eocene and miocene earth with their massive tread? Where is the megatherium, unless *improved* into the feeble sloth of the present day? These races appeared in the plenitude of their power; and as their dynasty grew old, it was not that the race was "improved" and preserved in consequence; but they dwindled, and were, so to speak, degraded, as if to make room in the economy of nature

for their successors. But this is too large a subject to enter upon at present.

Mr. Darwin gives some imaginary details respecting the development of certain instincts, concerning which it may be sufficient to remark that, had they been given by an opponent in the form of satire, or of a *reductio ad absurdum*, the purpose would appear to have been well answered. One instance may be given. The American cuckoo builds its own nest; probably the English cuckoo did so once, but perhaps accidentally and occasionally laid an egg in another bird's nest.

"If the old bird profited by this occasional habit, or if the young were made more vigorous, . . . then the old bird, or the fostered young would gain an advantage. And analogy would lead me to believe that the young thus reared would be apt to follow by inheritance the occasional and aberrant habit of their mother. . . . By a continued process of this nature, I believe that the strange instinct of our cuckoo could be, and has been, generated." *

The final and utterly fatal blow to the theory of natural selection is found in the fact of the existence of *neuters* or sterile females in insect communities, such as the working ants. These differ widely both in structure and instinct from both parents, and yet, being absolutely sterile, are unable to transmit their peculiarities. Their development by natural selection, therefore, is simply a contradiction in terms, a formal impossibility. Mr. Darwin recognizes the difficulty to the extent of saying that it *at first* appeared "fatal to his whole theory;" and adds, "It may well be asked, how is it possible to reconcile this case with the theory of natural selection?" † It certainly is not possible; and all that is said by way of illustration does not tend in the slightest degree either to remove or lessen the difficulty.

On a general survey of the theory, nothing strikes us more forcibly than the total absence of direct evidence of any one of the steps. No one professes to have ever seen a variety (producing fertile offspring with other varieties) become a species (producing no, or infertile, offspring with the original stock). No one knows of any living or any ex-

* Origin of Species, p. 302.

† Ibid. p. 343.

‡ Ibid. p. 342.

§ Ibid. p. 343.

* Origin of Species, p. 217.

† Ibid. pp. 236, 237.

inct species having given origin to any other, at once or gradually.* Not one instance is adduced of any variety having ever arisen which did actually give its possessor, individually, any advantage in the struggle for life. Not one instance is recorded of any given variety having been actually selected for preservation, whilst its allies became extinct. There is an abundance of semi-acute reasoning upon what might possibly have occurred, under conditions which seem never to have been fulfilled; but not the least fragment of direct testimony, either derived from human experience or from the geological record.

It is often said that it requires but little ingenuity to find objections to the Darwinian theory—that they lie on the surface—that Mr. Darwin himself was the first to recognize and acknowledge them. All this is to a certain extent true; but that an absolutely fatal objection to a theory lies on the surface, is no sufficient argument for rejecting it, or refusing to recognize its validity. Mr. Darwin did indeed from the first acknowledge certain difficulties, with a candor which has perhaps done more to advance the spread of his doctrines than any other course would have effected. His error consisted in looking upon these difficulties as something to be *got over*, in many cases by mere forms of words; and in not *earlier* recognizing that more than one of the objections were absolutely and essentially fatal to

the whole doctrine. It would appear that now Mr. Darwin has virtually abandoned the theory of natural selection as an agency for the production of species; that is, if words and ideas are allowed to have the same significance in regard to Evolution that they have in ordinary usage. In the "Origin of Species" we are more than once told that it would be "*fatal*" to his theory if the discovery were made of characters* or structures which could not be accounted for by "numerous, successive, slight modifications;" and now in the "Descent of Man," vol. ii. p. 387, we find the following passage:—

"No doubt man, as well as every other animal, presents structures, which, as far as we can judge with our little knowledge, are not now of any service to him, nor have been so during any former period of his existence. . . Such structures cannot be accounted for by any form of selection, or by the inherited effects of the use and disuse of parts."

Immediately afterwards he refers to their production by "*unknown causes*," which obviously, like Professor Huxley's appeal to "*subtle influences*,"† as a source of life-phenomena, involves a relinquishment of the entire position.

The conclusions which necessarily follow from the foregoing observations may be briefly summed up in one syllogism, embracing not only natural selection, but also the larger theme of Organic Evolution generally:—

"Without verification a theoretic conception is a mere figment of the intellect:"‡

But the theory of Organic Evolution is an unverified theoretic conception:§

THEREFORE ORGANIC EVOLUTION IS A MERE FIGMENT OF THE INTELLECT.

There is, however, a further aspect of this question. Although *unverified* as

* A formal exception must here be made in favor of Dr. Büchner, who states (Force and Matter, p. 80), that "*Holothuria* engender snails"! and adds, "If such an extraordinary process is possible that a *holothuria* should produce a snail, what naturalist can deny that conditions may once have subsisted in which . . . an ape, nay, *any other animal*, may have given birth to man?" As this snail event is less likely to occur, zoologically speaking, than that a hen should hatch from one of her eggs a puppy-dog, we may infer the value of Dr. Büchner's revelations generally. This learned and cautious gentleman (in his Preface, p. cli.), states that *his* method of investigation "has already conducted him to truth, enlightenment, and deliverance of his fellow-men from obsolete and pernicious prejudices." That it has also conducted him to literary sobriety and decency is evident from his comments on all who think differently from himself, whom he calls a "howling pack," "mental slaves," and "yelping curs." See Preface, p. lxxxvi.

* On this subject see also Mr. Mivart's Lessons from Nature, p. 337.

† See CONTEMPORARY REVIEW for September, p. 560.

‡ Professor Tyndall's Fragments of Science, p. 469.

§ As seen above, Professor Huxley gives it as his judgment that the only way in which such an hypothesis can be proved to be true is "*by observation and experiment upon the existing forms of life*." It is fully acknowledged that hitherto these have given no direct evidence in favor of the theory.

yet, it is not *proved* that *some* form of evolution may not be verified in the future. What has been done so far amounts merely to a demonstration that the doctrine, as now generally propounded, receives no direct support from facts; and that "natural selection," in particular, is simply impossible. It may be that "*the continuous operation of the ordained becoming of living things*"* is effected under certain limitations by some kind of evolution; but inasmuch as it still lacks any vestige of proof, the doctrine in no way warrants its supporters in upholding it as the only possible or thinkable system of ontology.

"The strength of the doctrine of Evolution consists not in an experimental demonstration (for the subject is hardly accessible to this mode of proof), but in its general harmony with scientific thought."† There is no doubt that if we can set aside the consideration of its adverse relation to all the phenomena revealed by "observation and experiment," much may be said, involving both reason and probability, in favor of this harmony with scientific thought. It must not, however, be forgotten that scientific thought can only mean the aggregate thoughts of scientific men; and that the doctrines of Evolution are not accepted universally. Mr. Darwin writes, in 1871,‡ "Of the older and honored chiefs in natural science, many unfortunately are still opposed to Evolution in every form." Since that time it is certain that, on the Continent at least, the doctrine has been met by many distinguished botanists and zoologists with growing disfavor. Nevertheless Evolution, if modestly and temperately advanced, forms an excellent nucleus around which to group many facts of science, and upon which to expend the energies

and genius of philosophical research. And as the dreams of the alchemists became the *vera causa* of chemical science, so it may be anticipated that at some future time, what are now the crude and baseless speculations of Evolution may lead to a truer knowledge of natural law, and a more perfect system of biology.

The strongest arguments in favor of the derivative origin, or evolution, of living forms, are found in the study of homologies (Morphology), and of Embryology, and these must now be briefly noticed.

"Homology is the name applied to the investigation of those profound resemblances which have so often been found to underlie superficial differences between animals of very different form and habit. Thus man, the horse, the whale, and the bat, all have the pectoral limb, whether it be the arm, or foreleg, or paddle, or wing, formed on essentially the same type, though the number and proportion of the parts may more or less differ. Again, the butterfly and the shrimp, different as they are in appearance and mode of life, are yet constructed on the same common plan, of which they constitute divergent manifestations. No *a priori* reason is conceivable why such similarities should be necessary, but are readily explicable on the assumption of a genetic relationship and affinity between the animals in question, assuming, that is, that they are the modified descendants of some ancient form, their common ancestor."*

The manifold indications of community of plan with diversity of execution, met with so constantly in the organic world, are phenomena full of the deepest interest and the most profound significance. It cannot be doubted that community of descent, genetic relationship, or blood affinity, combined with *indefinite variability*, would satisfactorily account for them. But as these conditions are entirely hypothetical, and involve a *petitio principii*, we must inquire whether they can be explained by no other means. If it be clearly demonstrated that they cannot, then *derivation* must be accepted. If, on the other hand, it can be shown that rational analogies indicate another possibility, then the question will still remain *sub judice*.

Our knowledge of the *causes of form* throughout nature is absolutely *nil*, but we know something concerning its acces-

* Owen's Palæontology, p. 3. Notwithstanding Professor Huxley's criticism upon this phrase, which he characterizes as a "quâ-quâ-versal proposition . . . which may be read backwards, forwards, or sideways, with exactly the same amount of signification" (Man's Place in Nature, p. 106), it seems to me to be at least as full of meaning as "nature's great progression from the formless to the formed—from the inorganic to the organic—from blind force to conscious intellect and will" (Ibid. p. 108).

† The Belfast Address, by Professor Tyn-dall, p. 527.

‡ Descent of Man, p. 2.

* This passage is taken from Mr. Mivart's General Summary of the Doctrine of Natural Selection: Genesis of Species, p. 7.

sory conditions, and from this knowledge it can be clearly demonstrated that similarity and identity of form do not necessarily depend upon community of origin. For the support of this proposition I would appeal to the phenomena of crystalline *isomorphism*, the fundamental law of which, as stated by Mitscherlich, is that "bodies having a similar chemical constitution have also the same crystalline form, as determined by the measurement of their angles." As an example, it is shown that the corresponding salts of phosphoric and arsenic acids, containing equal numbers of atoms of water, crystallize in the same forms.* Those who reduce all inorganic and organic forces to the same category cannot consistently object to an illustration of organic laws from the inorganic world; and here we have identity of form produced, and in other and allied instances all kinds of small modifications of form, where any idea of genetic relationship is altogether out of the question. This illustration *proves* nothing as to organisms, further than this, that matter in general aggregates into certain special forms in obedience to a force of which we know nothing. If simple salts aggregate into identical and allied forms, where their constitution is different, and where genetic affinity is impossible, is it inconceivable that, without this affinity, matter so much more complex in composition may aggregate also into allied forms?

Wherever we turn in biological research, we are compelled, if we will be logical, to recognize behind every outer form of living things a "*special endowment*" which can by no ingenuity be formulated in terms of molecular complication. It may be humbling to our pride to have to take refuge in a phrase; but what can we do? The "*endowment*" is *there*, in whatever it may consist; otherwise we are compelled to recognize diverse effects proceeding from the same cause. "The primordial germs of a man, a dog, a bird, a fish, a beetle, a snail, and a polyp, are in no essential structural respects distinguishable;"† yet in virtue of what we must of necessity

call a special endowment, each ultimately assumes its destined form. A fragment of Begonia leaf grows into a Begonia plant; a morsel of divided polyp grows into the same species of polyp—all due to an endowment which we can in no wise rationally connect with mere organization. It does not appear as if that most cumbrous, most incomprehensible, and most hopelessly complicated and impossible of doctrines, called *Pangeneis*, could help us at all in the emergency. We can form no definite conception of the nature of this endowment any more than we can of the nature of life itself; but it is surely better to acknowledge our ignorance, than dogmatically to assert that it is something which it demonstrably is not.

Again, if similarity of structure and typical formation be admitted as an argument for community of origin, surely it would be reasonable, conversely, to view diversity of typical formation as an argument for independent origin. Now there are at least five distinct types upon which the members of the animal kingdom are constructed which cannot possibly be reduced to any general expression or formula. The *Protozoa*, the *Celenterata*, the *Mollusca*, the *Annulata*, and the *Vertebrata* have all different archetypes, which have no natural or derivative relation one to the other. There is no traceable structural or developmental relation between any two of these, and we have it affirmed on the highest authority that "*there is not the least evidence to prove that a form, in the slightest degree transitional between any two of the groups, . . . either exists, or has existed during that period of the earth's history which is recorded by the geologist.*"* This is a most important statement and one which would appear to be absolutely fatal to any idea of unbroken causative or genetic succession of organic forms. But Evolution is more than hydra-headed, and error dies hard. We "must not for a moment suppose, because no such transitional forms are known, that the members of the sub-kingdoms are disconnected from, or independent of, one another. On the contrary, in their earliest condition they

* See Watts' Dictionary of Chemistry: "Isomorphism."

† Professor Huxley's Lay Sermons, p. 104. NEW SERIES.—VOL. XXV., No. 3

* Professor Huxley's Lay Sermons: Study of Zoology, p. 103.

are all alike,"* and their primordial germs are in no essential structural respect distinguishable; and this is considered to be conclusive evidence that they are all "bound together by an all-pervading unity of organization,"—including five distinct and utterly unassimilable types!

The argument from embryology is derived from the fundamental fact that the primordial germs of all animals (above the very lowest, of which we know little or nothing) are absolutely alike in all essential particulars. They are approximately (in most instances) of the same size; they are of the same chemical composition; and they present themselves under an absolutely identical form, that of a simple cell. Further, the history of this cell corresponds, in all types, to a remarkable extent. In all cases it divides first into two similar cells, then into four, eight, sixteen, and so on, until it arrives at the stage of the *Morula* (Haeckel) or "mulberry mass." Then commences another order of transformations, the first of which is the appearance of the "blastodermic vesicle." So far the process is virtually identical in all cases; and in the case of the higher animals, man included, the development of the embryo so closely corresponds, up to a late period, that at a tolerably advanced stage, say of the dog and man, the appearances are exceedingly similar.

For further illustration, the development of the higher animals may be represented as passing through certain stages, A, B, C, D, &c. . . . to Z—all those below Z representing closely corresponding stages in the lower forms; not the forms of the completed animal, but what may be considered a sketch or diagram of these or their embryos. We may suppose, for instance, that calling Z the perfected development of man, W might represent the incomplete ape, T forms of the lower mammalia, S the amphibia, P fishes, M annelida, F amœboid creatures, and so on. Then each one of these divisions at some period in the course of its development represents (typically or diagrammatically) the divisions *before it* in the alphabet, just as S, representing say the frog, presents at one period of its history the form of P

(fishes), as a tadpole. They do not in all cases present the whole of the letters preceding, but always some, and always in order, although the order may be broken. Thus the series might be A, C, K, S, &c., but never in the form of any succession like B, M, F, D, or the like; and particularly it must be remarked that the embryonic forms of any given race, say N, never represent any further or higher development, as P or S, but always and exclusively the types below, as K, L, M, &c. It is also "a general law, that the more closely any animals resemble one another in adult structure, the longer and the more intimately do their embryos resemble one another; so that, for example, the embryos of a snake and of a lizard remain like one another longer than do those of a snake and a bird; and the embryo of a dog and of a cat remain like one another for a far longer period than do those of a dog and a bird; or of a dog and an opossum; or even than those of a dog and a monkey."*

From all this has been deduced, in modern times, the beautiful and philosophical doctrine of the correspondences between Ontogenesis and Phylogenesis,† a doctrine the importance and utility of which can scarcely be over-estimated, so long as its domain is not extended to the explanation of phenomena to which it is in no wise applicable. It is thus formulated by Haeckel:‡

"These two divisions of our science, Ontogenesis and Phylogenesis, stand in the closest possible connection; and the one cannot be understood without the other. This fundamental biogenetic law, upon which the comprehension of the entire doctrine of organic evolution absolutely depends, may be shortly expressed thus:—*The history of the germ is an abstract or epitome of that of the race*; in other words, *Ontogenesis is a brief recapitulation of Phylogenesis*; or in somewhat greater detail, thus:—The series of forms presented by the individual organism during its development from the original germ to its perfect condition is a short and compressed repetition of the long series of forms presented by the ancestors of this organism, from the earliest periods of the so-called organic creation, up to the present time."

* Professor Huxley's *Man's Place in Nature*, p. 65.

† *Ontogenesis*, the history of individual development. *Phylogenesis*, the history of genealogical development. *Biogenesis*, the history of life-development generally. (Haeckel.)

‡ *Anthropogenie*, p. 7.

* Professor Huxley's *Lay Sermons: Study of Zoology*, p. 103.

Professor Haeckel further proceeds to deduce from this the doctrine that "Phylogenesis is the *mechanical cause* of Ontogenesis," on the supposition that each stage of development is directly inherited from some early member of the genealogical tree.

The facts of natural history and biology generally that group themselves around this idea are interesting and instructive in the highest degree. But to reason from the *correspondences* of embryonic development with lower forms of animal life, that they stand in relation of necessary cause and effect, is laying upon the doctrine a burden which it can by no means bear. A full examination of the subject is not only impossible within our limits, but would be unnecessary and out of place. It must suffice here to show that the facts of Ontogenesis by no means involve necessarily the admission of a common origin.

It is somewhat remarkable that it seems never to have occurred to the supporters of this doctrine, that on *mechanical* principles, those principles to which they are so ready to appeal in other departments, the development of a simple cell, under any theory whatever of ontology, must of necessity present a certain uniformity. The germ is *the same* in form and in chemical constitution, and therefore in "molecular possibilities," in all cases; on physical principles therefore it is only natural to suppose that its development *must* run the same course, if it be allowed that physical forces have anything to do with development. The mystery is not why the embryo in all cases *should* present certain resemblances, but why it *should not*. On ordinary principles we should expect that *all* germs *should* pass through the stages A, B, C, &c., more or less of them, if such be the case with any one of them,—and it is altogether unnecessary to call in a "*deus ex machinâ*" in the form of Phylogenesis to account for so obviously probable a fact. What possible reason is there that it should be otherwise? Why should germ A follow a certain course of development, and germ B, identical in all ascertainable particulars, and placed under similar conditions, follow a different one? And how is it made any the more or the less probable by attributing to them a common origin? Why one

germ should be arrested at E, another at M, and another go on to Z, certainly does involve a mystery; but one not elucidated by either Phylogenesis, or any other *mechanical* hypothesis. Why the *differentiæ* ever occur is assuredly not to be explained by community of origin.

From all this it would appear, that although the phenomena of morphology and embryology would give interesting corroborative testimony in illustration of an *already proved* doctrine of Evolution, they can by no means be made to serve as proof in themselves; and that we must accept the sound and philosophical judgment of Professor Huxley on this subject, that the truth of derivation of species can only be *proved* by "observation and experiment upon the existing forms of life."

If the doctrine of Organic Evolution fails to establish its claim to existence as a scientific hypothesis, with regard to the brute creation, still less can it bear the weight of the supposition that man is *only* a higher brute, owing his origin to direct descent from brutes, and to natural selection amongst these. Before discussing this subject, I wish to make one preliminary remark. Man's "essential bestiality"* has of late years been so often and so dogmatically asserted, that an impression has gone abroad, that the statements are founded on some positive scientific data. Thus when men of Mr. Darwin's eminence state that unless we "wilfully close our eyes, we may . . . recognize our parentage,"—that "the grounds upon which this conclusion rests will never be shaken,"—and that only he who is content to look upon nature "like a savage" can "any longer believe that man is the work of a separate creation,"† then those who still believe that scientific men must have some foundation for their confidently expressed opinions, will naturally attach considerable weight to them. Let it then be clearly understood in the outset, that whatever may be asserted in language however positive, there is absolutely nothing known scien-

* I believe the phrase is Mr. Mivart's, occurring in a most destructive criticism of the doctrine in question; but I have not the exact reference.

† Descent of Man, vol. i. p. 213, and vol. ii. pp. 385, 386.

tifically concerning man's origin; and that all that has been or can be said consists merely of rash and hasty inferences and deductions from the general doctrines of Evolution, the value of which we have been attempting to estimate, and which (we have seen strong reason to believe) is only an "*unverified theoretic conception*," in other words, a figment of the imagination.

In Professor Huxley's brilliant sketch, entitled "Evidence as to Man's Place in Nature," the structural and developmental relations between man and certain of the higher animals are set forth in the most graphic and incisive manner. It is conclusively demonstrated that the differences in structure, [however great they may appear, are greater between certain different races of men than between the lowest man and the highest ape. It is shown in particular (p. 78) "that the difference in volume of the cranial cavity of different races of mankind is far greater absolutely than that between the lowest man and the highest ape, while, relatively, it is about the same." It is further demonstrated that "whatever system of organs be studied, the comparison of their modifications in the ape series leads to one and the same result—that the structural differences which separate man from the gorilla and the chimpanzee are not so great as those which separate the gorilla from the lower apes" (p. 103). With regard to the embryological proof, it is remarked (p. 66) that "it is very long before the body of the young human being can be readily discriminated from that of the young puppy, . . ." and "that it is only quite in the later stages of development that the young human being presents marked differences from the young ape, while the latter departs as much from the dog in its development as the man does." The author adds:—

"Startling as the last assertion may appear to be, it is demonstrably true, and it alone appears to me sufficient to place beyond all doubt the structural unity of man with the rest of the animal world, and more particularly and closely with the apes." (P. 67.)

These, in common with all the arguments advanced on this side of the question, are admirably adapted to prove that which I suppose it has never occurred to any one to doubt—namely,

that man is an animal. It is difficult to conceive what else he could be, if he were intended to be a living, active, and intelligent creature in any form; and if an animal, then it is certain that the type of his formation must correspond to that of some of the higher mammalia. (For a clear and logical demonstration of this position, the reader is referred to Mr. Mivart's "Lessons from Nature," in the chapter on "Man.") The real question at issue is not whether man is an animal, but whether he is not also something more and higher—something endowed with attributes differing not only in degree, but also in kind, from those of the brute—attributes of which the brute has not even the most elementary germ.

I think Professor Huxley satisfactorily answers this question in the work already quoted. After showing "that no absolute structural line of demarcation, wider than that between the animals which immediately succeed us in the scale, can be drawn between the animal world and ourselves," he indicates the essential superiority of man, as being "the *only consciously intelligent* denizen of this world" (p. 110), and adds that "no one is more strongly convinced than I am of the vastness of the gulf between civilised man and the brutes, or is more certain that, whether *from* them or not, he is assuredly not *of* them."

But this is not all: after showing how very closely man corresponds *structurally* with the higher apes, so closely that there is less difference between him and the gorilla than between the gorilla and the lower apes, Professor Huxley frankly recognizes an "*immeasurable and practically infinite* divergence of the human from the simian stirps" (p. 103). This is a statement of the utmost significance, and involves a final and perfect demonstration of the truth that has been forced upon our attention more than once in the course of this inquiry, namely, that *structure* does not even approximately represent essential nature. We first saw reason to believe that structure (or molecular composition) was *not* life; subsequently it appeared that structure was not the essence of species, or specific difference; and now it is perfectly evident that structure does not cover nor indicate the essential nature of man.

For with a certain difference in *structure* between the lower apes and the gorilla, we find but a moderate, certainly finite, and easily measurable difference of *nature* between them; whilst with a *less marked difference* of structure between the gorilla and man, we have a divergence of *nature* "*immeasurable and practically infinite.*"

Can any demonstration be more complete and cogent that man's specific characteristics are not to be defined by details of bodily structure? It is by the possession of attributes and faculties that either do not exist at all, or are merely rudimentary, in the brute, that his essentially distinct nature and origin are indicated. By the possession of intelligently articulate language, of a conscious reasoning and reflective faculty, of a moral sense, of a religious sentiment; by his power of conceiving abstract ideas of truth, justice, &c.; by his faculties of judgment and conscious volition; by all these it is demonstrated that man is neither *from* nor *of* the brute; that he "differs fundamentally from every other creature which presents itself to our senses; that he differs absolutely, and therefore differs in origin also."* And great as are all those marks of distinction, one perhaps still more important remains behind, that is, man's capability for continuous progress—his power of utilizing and profiting by the "registered experience" of successive generations.

Whether any animals may be considered to possess any rudiments, from which, by means of evolution and natural selection, articulate speech might be supposed to be developed, is very doubtful, even in the minds of the Evolutionists.† Mr. Darwin freely confesses that "articulate language is peculiar to man."‡ Professor Huxley is of the same opinion, but attributes the want of it in the higher brutes to some "inconspicuous structural difference," as slight as might be imagined to exist between "a watch that keeps accurate time and another that will not go at all," owing to some trifling

accident, such as a "hair in the balance-wheel, a little rust on a pinion,"* or the like. With reference to this question of structure, it is not uninteresting to consider the fact that the power of uttering articulate words is not found in those races the structure of whose vocal organs is nearest to that of man; but in such creatures as parrots, whose vocal organs are so different from those of man, that it is not altogether easy to trace either the analogous or the homologous parts.

With regard to volition and the reasoning faculty, we may observe some germs in animals, although it is not always possible to distinguish how much may be due to mere reflex action. As relating to the other distinguishing characteristics of man, they do not seem to be present in even the most rudimentary form in the brute. There is evidently no indication of progressive possibility; it needs no discussion to show that the religious sentiment has no representative whatever, nor such abstract ideas as truth and justice; and Mr. Darwin's abortive attempt to trace back the "moral sense" to some development of gregarious or social instincts is so completely beside the mark, that it really presents no point for criticism. Professor Huxley, with great sagacity, says nothing about it.

Turning to the genealogical tree of the human race, as sketched by Evolutionists, we meet with many points of interest. Mr. Darwin finds that—

"The early progenitors of man were *no doubt* covered with hair, both sexes having beards. Their ears were pointed and capable of movement, and their bodies were provided with a tail. . . . The foot . . . was prehensile, and our progenitors, *no doubt*, were arboreal in their habits, frequenting some warm forest-clad land. . . . At an earlier period the progenitors of man *must have been* aquatic in their habits."

And so we are traced backwards in our pedigree until we find the race derived from "a group of marine animals resembling the larvæ of existing Ascidians," which were our "most ancient progenitors in the kingdom of the Vertebrata."†

On this Ascidian and its larva, it is necessary to make a few remarks, which will illustrate the mode in which the hypothesis of Evolution, and of man's ori-

* Lessons from Nature, p. 190.

† Except the ingenious Dr. Büchner, the value of whose statements we have already seen. He says that animals *have* articulate speech.

‡ Descent of Man, vol. i. p. 54.

* Man's Place in Nature, p. 103.

† Descent of Man, vol. i. chap. vi.

gin in particular, is built up. It is known that there is no transition form between the *Invertebrata* and the *Vertebrata*; but as a recognized hiatus between any two classes would be fatal to the "unbroken sequence of nature" in which the Evolutionist delights, it must be filled up or "bridged over," *coûte que coûte*; and the Ascidian has been selected to represent the transition form. Now, this Ascidian is not even a highly-developed mollusc, but a creature of low organization, about on a level with an oyster, fixed to the rock during the whole of its adult life, and having no nervous system to speak of, with the exception of one ganglion and a few nervous fibres between the two layers of its bag-like body. In this adult form it evidently will not answer the required conditions, but it is said to have been discovered that its *larvæ* "are related to the *Vertebrata* in their manner of development, in the relative position of the nervous system, and in possessing a structure closely like the *chorda dorsalis* of vertebrate animals." And thus we are supposed to "have at last gained a clue to the source whence the *Vertebrata* have been derived."*

I would ask for especial attention to this point; for it is here demonstrable either that the zeal for theory has led Mr. Darwin and his school into grievous and palpable error, or that there is no truth in the doctrines of embryology as set forth by all systematic writers. If the relations between Ontogenesis and Phylogenesis as above stated have any existence in nature, no embryonic form of any animal can possibly represent any *higher* type of development than the animal itself. For instance the *larvæ* of M might exist as L, F, or D, but never as P or S. Yet we are here called upon to believe that the larva of a mollusc appears, not in the form of a lower mollusc, or one of the *Cœlenterata*, but that it is actually organized, living, and moving in the form of an adult being of a different sub-kingdom, the highest of all, the *Vertebrata*. I am not in a position to dispute the fact, if such it be. I have neither seen any dissection of the larva in question, nor heard of any. All that I would urge is this, that such a fact will

utterly destroy the entire theory and science of embryology. If there be any truth whatever in this science, it is perfectly clear that the existence of a quasi-vertebrate larva in the Ascidians is a very cogent argument that the Ascidians have descended from some vertebrate type, but certainly not that the *Vertebrata* have descended from *Ascidians*.

Professor Haeckel has apparently perceived this difficulty, as a matter of theory, and provides for it in the most characteristic manner, by inserting in our genealogical tree a form of animals which he calls *Chordonia*, which "developed themselves from the *Annelida*, by the formation of a spinal marrow and a *chorda dorsalis*!"*. Other details of their structure are given very systematically, and it is shown how they became the parents of the nearest now-living genera, the *Ascidians*, &c. The author does not even profess to have any evidence to produce that such animals ever existed; there is no living representative of them; there is no fossil evidence of their early existence; the sole *raison d'être* of the class is, *that they are required by the hypothesis*. This interpolation of imaginary classes of animals occurs frequently in Professor Haeckel's history of man, as we shall see presently. Meanwhile, should it be supposed that I have exaggerated this most marvellous method of constructing scientific natural history, I would commend to the reader's careful attention Professor Haeckel's twenty-second chapter, on the "Brute Ancestors of Man," in the work already quoted.

Thus our study of the pedigree of man, as set forth by Mr. Darwin, lands us in a serious dilemma. Either the pedigree is hopelessly shattered at the most important point in its development, by collision with embryology; or this doctrine, that upon which Evolution is mainly supported, is proved to be a delusion, inasmuch as it cannot by any possibility be strained to include Mr. Darwin's facts. The antagonism is real and irreconcilable; it must be left to the transcendental philosophers of the school of Evolution to decide which part it will be the most to the advantage of their doctrine that they should uphold.

* Descent of Man, p. 205.

* Natürliche Schöpfungsgeschichte, p. 583.

With regard to the remainder of Mr. Darwin's "Descent of Man," it is not necessary to say much. It has been weighed in the balance and found wanting. It is as unsatisfactory and inconsequent in argument as it is charming in style, rich in fancy, and fertile in illustration. The volume and a half relating to "Sexual Selection" may be considered as a delightful story of the loves of the birds and beasts, with about as much real bearing upon the science of Evolution as the "Loves of the Angels." A theory of selection which ought, if a true principle, to be of universal application, and yet leaves perhaps nine-tenths of the forms of life obviously out of its domain, can scarcely take rank as a scientific hypothesis. It certainly adds but little to our knowledge of man's nature, and gives only the feeblest of support to any theory of his origin. It gives no single instance of the actual operation of selection in the formation of species, but abounds with suggestions of what "might have been" (which soon becomes "must have been") under unknown or impossible conditions.*

Professor Haeckel pronounces upon man's pedigree with the most unhesitating confidence. He speaks of "our ancestors" as *Monera*, "our ancestors" as worms, "our ancestors" as fishes, &c., &c., with the greatest freedom. We are reminded that when we speak of "poor worms" or "miserable worms," we should remember that "without any doubt a long series of extinct worms were our direct ancestors."† He recognises twenty-two distinct stages in our evolution, which I will briefly recapitulate, as comprising the latest data of philosophy on this subject. Of these, eight belong to the invertebrate, and fourteen to the vertebrate sub-kingdom. What follows is only an abstract of the chapter before referred to.

1. The *Monera* is the earliest form of life. It arose in the Laurentian epoch by spontaneous generation from inorganic matter. Its acceptance as our earliest ancestor is necessary "on the

most weighty general grounds." 2. The *Amæba*; and 3. The *Compound Amæba* come next. They are to be accepted on embryological considerations; as are also 4. The *Planæada*, represented by some ciliated animalculæ. 5. The *Gastræa* (Urdarmthiere) are a purely imaginary class of animals. They are placed here because required as ancestors for the *Gastrula*, itself an imaginary order, derived from embryological exigencies.* 6. The *Archelminthes*, or earliest worms, represented now by the *Turbellaria*. 7. The *Scolecida*, the actual annelidan representatives of which are not known. 8. The *Chordonia*, noticed above, also a purely imaginary type, having no known extinct or living representatives, but being undoubtedly the progenitors of all the Vertebrata, through the Ascidians.

9. The *Acrania*, represented by the *Amphioxus*, the lowest form of vertebrate animal, a rudimentary fish, having certain resemblances to the Ascidians. 10. The *Monorhina*, which was the parent stem of the sharks, through the *Amphirhina*, represented by the modern lampreys. 11. The *Selachii*, or shark tribes, from which sprung—12. The *Dipneusta*, or *Lepidosirens*, from which originated—13. The true Amphibia, and—14. The *Sozura*, another order of Amphibia, interpolated here "because required as a necessary transition stage between the true Amphibia," and—15. The *Protamniota*, or general stem of the mammalia, reptiles, and birds. "What the *Protamniota* were like," says Professor Huxley, "I do not suppose any one is in a position to say,"† but they are proved to have existed, because they were the necessary forerunners of—16. The *Pro-mammalia*, the earliest progenitors of all the *Mammalia*. The nearest living genera are the *Echidna* and *Ornithorhynchus*. 17. *Marsupialia*, or kangaroos. 18. The *Prosimia*, or half-apes, as the indris and lorises. 19. The *Menocerca*, or tailed apes. 20. The *Anthropoides*, or man-like apes, represented by the modern

* Those who are interested to know to what lengths zeal for theory will occasionally carry its supporters, may find an illustration in *Nature* for November 2nd, p. 18. The subject is scarcely adapted for quotation.

† Anthropogene, p. 399.

* The reader is requested not to view this as a gloss or caricature on the text. It is as nearly a precise abstract as I can make it; and the work in question is considered one of the most philosophical treatises on biology of modern times.

† Critiques and Addresses, p. 318.

orang, gibbon, gorilla, and chimpanzee, amongst which, however, we are not to look "for the direct ancestors of man, but amongst the *unknown* extinct apes of the Miocene." 21. The *Pithecanthropi*, or dumb-ape men—an unknown race—the nearest modern representatives of which are cretins and idiots!! (p. 592). They *must have* lived, as a necessary transition to—22. The *Homines*, or true men, who "developed themselves from the last class, by the gradual conversion of brute howlings into articulate speech," &c., &c.

With regard to the immediate ape-like ancestors of man, it is distinctly and very emphatically set forth (p. 577) that none of the modern anthropoid apes can be regarded as our direct progenitors:—

"This opinion is never held by thoughtful supporters of the descent-theory, although often attributed to them by their *thoughtless* opponents. Our ape-like ancestors are long since extinct. Perchance their fossil remains may some time be found in the tertiary deposits of Southern Asia or Africa. They must nevertheless be ranked amongst the tailless catarrhine anthropoid apes."

It is perhaps scarcely necessary again to state that such a scheme of progression as that just briefly sketched has no existence in nature. There is no evidence of it in existing forms of life; there is no indication of it in fossil remains; and there is no possibility of such a progression, even as a matter of theory, in accordance with the recognised laws of morphology. There are at least four distinct types of animal life, the *Cœlenterrata*, the *Mollusca*, the *Annulosa*, and the *Vertebrata*, between no two of which is there any transition form or forms, either known or conceivable—that is, if morphology be a science at all, or anything beyond an incoherent aggregation of irrelevant and unconnected details of structure.

The reader is now in position to judge of the value of the evidence, which I have endeavored fairly to epitomize, both as to evolution in general and the pedigree of man in particular; and also to determine whether it is necessary to do more than to leave both the original and the derived doctrine to perish from inherent weakness. The connection of these doctrines with human automatism is nothing new or strange. All that has

been said by Professor Huxley is very little more than an amplification of what was most clearly and tersely set forth by Lamarck more than sixty years ago.

Lamarck discerned with perfect clearness the strict logical dependence of human automatism upon a physical theory of life. It will be evident from a consideration of the following extracts from the introduction to his "*Histoire Naturelle des Animaux sans Vertèbres*," how little progress has been made in this department of biological science since his days:—

"Every fact or phenomenon that can be observed is essentially physical. . . . All movement or change, every acting force, and every effect whatever, are due necessarily to mechanical causes, governed by laws. . . . Every fact or phenomenon observed in a living body is at once a physical phenomenon and a product of organization." (Preface, pp. 11 et seq.)

He further refers to these physical phenomena as "constituting life" (p. 12), and to sensation and thought being due to changes in a "particular system of organs capable of giving rise to these physical, mechanical, and organic phenomena." From these general principles the conclusions are natural and inevitable, that "all living bodies or organisms are subject to the same natural laws as are lifeless or inorganic bodies; that the ideas and faculties of the mind generally are but manifestations of movements in the central nervous system;" and finally, that "*the Will is in truth never free.*"

But be the doctrine new or old, it cannot be denied that it is a strictly logical deduction from the postulate.

If man is but the product of the molecular forces of matter, from which he is evolved without the "intervention of any but what are termed secondary causes;" if he is merely a "co-ordinated term of Nature's great progression," or a result of "the interaction of organism and environment through cosmic ranges of time;" then is he indeed, hopelessly and helplessly, a mere automaton, with neither choice, will, nor responsibility. But if, on the other hand, it has been or can be proved that such doctrines find no support from science, from observation, from experiment, or from reason, then the doctrine of Human Automatism is relegated to the domain of all such

"figments of the imagination," and man may trust implicitly to the consciousness which tells him that he is no mere machine; but a responsible free agent,

with duties to perform to his God, his neighbor, and himself; and a conscience to prick him if he performs them not.—*Contemporary Review*.

CULTURE AND MODERN POETRY.

IT must have frequently occurred to the readers of modern poetry, that the ancient and time-worn dictum, assuring us that a poet is born, not made, must in our day have lost, if not some of its force, then certainly some of its fitness. To this conclusion we must come if the word *poet* has not changed its signification. The original genius ("his soul is with the saints we trust") who first propounded the *poeta nascitur* dogma, had his eye no doubt upon certain of the stiffnecked and rebellious, who clung to the condemned creed, that, given a fair average quantity and quality of mental fibre, a poet might, after all, and with some little trouble, be made. Dr. Johnson held that a given amount of ability may be turned in any direction, "even as a man," he argued, "may walk this way or that." "And so he can," answered in our day Archbishop Whately, "because walking is the action for which his legs are fitted; but though he may use his eyes for looking at this object or that, he cannot hear with his eyes, or see with his ears. And the eyes and ears are not more different than, for instance, the poetical faculty and the mathematical."

Notwithstanding the completeness of this answer, there is room for grave suspicion that the Doctor's theory has still, not only its believers, but its school and its disciples. If we are to judge by the living facts around us, and seek a conclusion through the philosophy that teaches by examples, that conclusion must inevitably be—either, that we have still amongst us crowds of heretics who abide by the belief in the manufactured article, or that the poetic faculty is a very much more common production than it used to be. Nor is the alternative very puzzling. Any one who takes the trouble of looking into the titles of the several claimants of the laurel as they rise, must get himself more and more convinced that the poet made is rampant, and that the real possessor

of what Mrs. Browning called "the sorrowful great gift,"—the poet born of the old dogma—is as rare as he has ever been, and in fact, there are not a few who do not hesitate to declare he is as dead as the Dodo.

Many of those in the present day who approach nearest to the old standard of the poet born have, in addition, so much about them of the poet made, that the proverb no longer fits, and, we may add, have so much about them of what is so elaborately made, that one is tempted to believe some of them might have been greater men at less pains.

Macaulay declared that "as civilization advances, poetry almost necessarily declines." Without denying that the assertion at first sight has an appearance of plausibility, we are inclined, on closer examination, to set it down as one of those half-truths which the brilliant essayist's partiality for a telling antithesis frequently led him into: just one of those picturesque announcements, which Mr. Spedding—speaking of Macaulay's extravagant strictures on Lord Bacon—characterizes as proceeding from "the love of rhetorical effect in a mind rhetorically disposed." If indeed we are to suppose civilization in Macaulay's phrase to be in this case synonymous with education, as it is loosely understood, then the statement does contain a certain amount of truth. But if we mean by education what it should be rather than what it is—a drawing out of a man's emotional nature, as well as his merely mental qualities, then the statement not only contains in it nothing that is true, but something that is pretty nearly pernicious. If even we could be brought to admit the possibility of poetical decline from such a cause, we would not the less strenuously deny the necessity of any such decline. Certainly nothing will contribute more surely to the decline of poetry than the civilization which forgets to educate those very faculties and parts of a man's nature

by the exercise of which alone poetry can either be produced or appreciated. And if, in addition to the neglect of these faculties, we give an exaggerated importance to the education of the faculties which naturally counteract them, we at length reach tangible grounds and get something more than a glimpse of the civilization in which poetry necessarily declines. Under like conditions, would it be a matter of surprise that Logic, Metaphysics, Science, or any of the mathematical or mechanical arts should also decline? Physiologists have long ago agreed that the inordinate exercise of one set of muscles invariably results in the impoverishment of the corresponding set, and it is quite as possible in the mind as in the body, by excessive exercise, to strengthen one set of faculties to the permanent weakness and injury of the others. Nor can it be denied that the prevailing partiality for scientific and mechanical pursuits, by keeping imagination out in the cold, has had the effect of making our more recent advances rather a one-legged progress.

By exclusive attention to the education of the emotional side of a man's nature, you will no doubt succeed in creating such a milksop as shall hardly supply fibre enough for the hero of a penny novel; but, on the other hand, by an equally exclusive cultivation of the rationalistic side, you will develop something quite as weak, and as dangerous, and a good deal more intolerable. To look strongly at anything with one eye, it is natural to close the other, and so with reason's eye riveted, one need not be surprised to find the eye of imagination shut.

In the civilization whose progress is thoroughly sound, the education of the head and of the heart should go abreast, and the assumed advancement in which poetry declines is more than likely to be the civilization of an age that sacrifices its emotions to its reason. If this be true, we must be prepared to see a good many other things decline. First after poetry, perhaps religion, and after that the possibility of political cohesion. If we read history carefully enough, we shall find in most cases, that this lopsided civilization, under some very high-sounding aliases, "Perfectibility of Human Nature," "Age of Reason," and

so forth, has a trick of moving in a circle, and playing itself out. By-and-by the neglected half of human nature has its revenge. The fatal flaw in this emotionless culture is that it contains no sort of human amalgam strong enough to bind society together. The individual forces composing it are what Lord Palmerston would have called "a fortuitous concourse of atoms," and possess no element of political adherence. The forgotten thing that under the name of Emotion was allowed to fall asleep as quiet as a lamb—the busy worshippers of Reason taking no note of the fact—awakens one day with a changed name and a changed nature. It is now a lion. Spurned Emotion has grown to Rage, an easy transition. Renewed by his sleep, the lion rises up and scowls around him, rushes into society with his tail in the air, inaugurates a Reign of Terror, and reasserts the sovereignty of the brute. When the mad fit has gone, and the long arrears to the heart have been paid for in blood, cash down, society sits down again clothed and in its right mind. The Sisyphus of civilization finds himself again at the foot of the hill, glad to accept a philosophy that, if less high-sounding and pretentious, is at least a good deal more human.

That in the progress of the civilization worth the name, the arts should, and actually do extend their influence and empire, hardly requires to be argued. It is rather a matter of historical demonstration than a matter of opinion, and the immensely wider field and increased appreciation of the particular art of poetry might be amply illustrated by simple reference to fact. We do not mean to assert, however, that the publication of any number of editions of the best poets, with an almost universally reading public, necessarily involves the more frequent recurrence in society of the poet born. The times and seasons of genius are as inscrutable as the thing itself. It is one of those things (for there are a few of them yet left) that has not as yet been altogether circumvented by the rationalist. The natural law—as he would probably call it—that evolves its higher immortals, that drops down here and there, over three or four centuries, its Raphaels, Shakespeares, and Beethovens, is one of those that has not

been quite accounted for by that science of Averages which promises to make everything so easy by-and-by. We can see no good reason, however, for concluding that in such an improved condition of society as this advanced civilization brings about, the poetical gift amounting to genius should occur less frequently, although it may be easy to conceive that it may be born under the unlucky star of having its lot cast in a mechanical civilization unfavorable to its development. It must be admitted also that the same artificial education that stimulates mediocrity so wonderfully seems sometimes, not only to obscure, but even to interfere with and impede the more original gift. And yet these unfavorable influences once overcome, civilization stands no longer in the way, but rather pays tribute. We need not look for the removal of these obstacles, nor is civilization altogether to blame for them. It must legislate in the interests of the majority, not the minority—the rule, not the exception—and even if it were advisable, it would yet remain impossible to make educational provision, to fit at all points such exceptional cases as genius present. The ideal *milieu* that would do justice to every variety and degree of natural gift, and injustice to none, is as far off as ever, and will probably remain what it ever has been, a world-without-end desideratum. But what if these very obstacles of genius, the earthly incompatibilities, the uncongeniality of atmosphere, which always have been, and from the nature of things must continue to be, its never-ending complaints—what if these are only the providential and appointed spurs in the side of genius, intended to take the place of the more ordinary educational stimulants that serve the purpose of mediocrity? It might be fairly argued from the lives of great men, that there is a given amount of genius at which education becomes almost impossible, and which, in fact, defies education in the ordinary sense of the word. There seems to be a degree reached in the brain barometer, at which faculty undergoes a chemical change and slips through the fingers of the educational manipulator in an imponderable ether. Let the earth rejoice that this abnormal gift usually brings with it the gift to educate itself. Sir

Humphry Davy, in a letter to his mother, making reference to the way in which his schoolmaster had neglected him when he was a child, declares he was fortunate in such neglect, and adds, "I perhaps owe to this circumstance the little talents I have and their peculiar application." Sir Walter Scott, who cut but a poor figure at school, says that "the best part of every man's education is that which he gives himself." William Blake goes a good deal further, and boldly says—

Thank God, I never was sent to school
To be flogged into following the style of a fool.

Leslie, again, declares that it was Fuseli's "wise neglect" of young Landseer that helped to make him what he afterwards became. Turner's father put him to school to learn drawing, and in a short time his teacher, a most competent man, brought the pupil back, fairly beaten, and told his father it was no use, the case was hopeless. Many such anecdotes from the lives of great artists might be added to these, but perhaps poetry's more nearly related sister art of music supplies us with the most striking illustrations. On that auspicious morning, which must ever be held in grateful remembrance by all lovers of music, when the Duke of Saxe-Weissenfels caught a little boy surreptitiously amusing himself on his chapel-organ, ordered him up before him, and settled his career from that day forward, by then and there finding him guilty of genius, no one was more astonished at the verdict than the said boy's own father, who could throw very little light on how young Händel came by his accomplishment, and none at all on how he came by his genius—a thing he had never even been suspected of. Again, Schubert's instructor complained that he was always making the mortifying discovery that he could tell his pupil nothing but what he knew beforehand. When young [Nicolo] Paganini—a mere boy—was sent to Parma to study under Alessandro Rolla, the great musician, on hearing him play, told him to go home, he could teach him nothing. Moschelles told the parents of young Mendelssohn the same thing, and when that excellent couple had at length prevailed on him to give their son lessons, he knew and openly confessed the thing was a mere form.

In the recently-published *Life of Moschelles* we find an entry in his diary dated November 22nd, 1824 (Mendelssohn being then fourteen), to the following effect: "This afternoon I gave Felix Mendelssohn his first lesson without losing sight for a single moment of the fact, that I was sitting next a master, not a pupil." Mozart, again, was the despair of his instructors. And what indeed could any one be expected to teach a boy who could write tunes at four years old, and was a master himself, and the astonishment of masters, at an age, in ordinary cases, before education can be said to have properly begun? Then again, Beethoven, how he laughed at the idea of even Haydn having taught him anything. He was a standing puzzle to the professors, and to the end of his life used to enjoy their helpless perplexities, and would chuckle over the difficulties they could not explain by reference to any authoritative thorough-bass book. Cases like these set all ordinary method at defiance.

The difficulty of bringing musical genius under any systematic educational training is even aggravated in the poet's case. If the gift indeed be small enough, education is everything, and in such a case it will teach the poet to be a more elegant *rimeur* of the *vers de société* stamp, and the musician an endless producer of what are called *morceaux de salon*, but one naturally does not look for anything corresponding to the "Samson Agonistes" or the Sonata "Pathétique" from such quarters. The artificial soil that hurries into fruit the smaller faculty may not always be the most suited for the development of the deeper rooted gift. On the contrary, we suspect that the civilization that levels up the lower endowment, sometimes involves a corresponding liability to level down the higher. Again, in a condition of society so almost universally informed, if not cultivated, the recognition of anything short of towering genius is hardly to be expected. Who could bring himself to believe, for example, that if three-fourths of the poets eulogized in Johnson's "Lives," or gathered together in Chalmers' Collection, were walking in the flesh amongst us now, it would make any appreciable difference? Not that any one begrudges them the niche they have

earned, only were it to be earned again, and upon the same work, who can reasonably doubt but that an immense preponderance of them would pass on to their graves unnoticed?

Critical discernment, and discrimination between gift and gift, seems to increase in difficulty with the progress of civilization. In an age when education was the privilege and luxury of the few, the greater gift made its mark readily, but when the advantages of culture become more generally distributed, it is not so readily recognised and the man of talent—more especially the man of mimetic talent—is by the great majority not to be distinguished from the man of genius. In much of the criticism issuing from even authoritative quarters, one not unfrequently sees the work of the merely dexterous performer passing off for the outcome of inspiration. In the interests of art it would pay well if every critic were gagged who did not know the difference. Not to hint for one moment that a perfect knowledge and use of the instruments of his art can be dispensed with, even by genius itself, we still hold that it is mainly to this educated rattle of the tools without the gift, that we are indebted for the abundance of modern poetry so called. Perhaps it is one of the inevitable hostages we must pay to universal civilization, but it is surely worth an effort to keep the two products apart. The difference of value is discriminated by all in the more ordinary affairs of life. An illustration may be taken from an art which every one practises more or less, the art of speech. A man may talk the purest rubbish in the purest English, perfect in style, faultless in grammar. What is called his "delivery" may be perfect, while the thing itself delivered is utterly worthless; dear at the breath it cost to deliver it, dearer still at the effort to listen. Now this of course is mere platitude. Nobody disputes it, because there is almost nobody but what has to endure it now and then. But it does not strike us all so forcibly that there is an analogous case to this in all the other and higher arts. The analogy in music, for instance, is not so commonly perceived. Change the medium of expression from words to sound, and some will even deny that such analogy exists. Amongst so-called musicians them-

selves, nevertheless, nothing is more common than for a man to convince himself that he is giving the world music when he is only giving them grammatical noise under cover of musical speech. In his sphere he is neither more nor less than an idealess chatterer of correctly worded nonsense.

Many who can clearly discern this in the case of speech, seem to fall short of the perception that in music—which is only after all a subtler form of speech—it is equally necessary to have something to say worth saying, before the thing said can have any value. The analogy holds good with all the arts—for all are but different modes of conveying thought and feeling. It is not alone sufficient that a musician should know thorough-bass and counterpoint, or a painter the laws of perspective and chiaroscuro,—or in short that any artist, whatever that art may be, should have a perfect knowledge of his subject, and a perfect mastery of its minutest appliances. Unless there goes along with these the ability to use them in the conveyance of original thought, his execution may be admirable, he may be the most skilful of artificers, if you will, but an artist never. Lord Bacon says of studies, "They teach not their own use: but *that* is a wisdom without them and above them." This is the part of every artist's education no man can give him, and is not to be confounded with technical dexterity. This last contribution to his efficiency and the one that lifts him out of mediocrity cannot be attached by any amount of educational fitting and screwing. It is the gift specially contributed by his Maker—that impalpable gift beyond the reach of criticism or definition, and in the artist's case his greatness will mainly depend on his clear perception of what that gift consists, and the devout loyalty with which he is prepared to live for it.

The commonness of the extrinsical, and what may be called the ingrafted talent, as compared to that which is intrinsic and indigenous, is sufficient to account for the greater bulk and abundance of its products. In poetry we have a hundred volumes coming from this ingrafted talent, for one that issues from natural gift: work that may be considered the result of a cultivated taste and a fair education, and in many cases accom-

panied with great technical adroitness. Now it would be ungrateful not to acknowledge that many of these volumes are most interesting, and untrue to say they are perfectly devoid of natural gift. The work they represent may be, and sometimes is, more conscientiously creditable in a certain sense than the work of genius itself, and cultivation is as great a duty in their case as in the other. The commandment is as binding on the one talent as the ten, and if we had no higher motive than personal satisfaction, better cultivate ever so little a patch than none. Better that a man should grow mignonette on a window-sill than no flowers at all. But yet in the interests of art and art-criticism, it is essential that the two kinds of work—for the difference is one of quality as well as degree—should be broadly distinguished and clearly discriminated. The ingrafted faculty for poetry, sustaining itself mainly from memory and the radiation of greater minds, and building out of its funded educational acquirements, however highly cultivated and however artistically it may clothe itself with words, will never take the place or work the miracles of that simpler and deeper endowment that derives its nurture more directly from its own heart, and bases its power upon the exercise of its own intrinsic capabilities. The products of the two are as widely different as their sources, and let no poet deceive himself, the difference is readily recognized, and keenly appreciated by the most unsophisticated apprehensions, and pronounced upon with unerring instinct, by thousands who know nothing of the wherefore of the difference, and who could not for the life of them give a reason for their preference. Such preference, however, let it be remembered, is not the less deeply rooted because it is arrived at by no conscious process. Nor, on the other hand, are the dislikes in such cases to be pooh-poohed simply because the explanation of it is not always at hand—

Je ne vous aime pas, Hylas ;
Je n'en saurais dire la cause.
Je sais seulement une chose ;
C'est que je ne vous aime pas—

and there is no help for it. No amount of agonized excogitation, no amount of the most masterly manipulation of the

implements of the art, will ever succeed in giving us the tiger-like spring of the original conception—the leap in the air as of an unsheathed sword—that characterizes the genuine inspiration. Those conceptions of the poet that strike the deepest and live the longest do not come to him by any long-sustained and elaborate process; but finely sensitive to Nature's ordinary influences at her slightest touch,

Across his sea of mind,
The thought comes streaming like a blazing
ship
Upon a mighty wind.

The true gift does not go out of its accustomed way for its effects; does not dive to the bottom of its own consciousness to bring up with infinite labor its brightest pearls. If the thought be there, the faintest breeze will give it wing. Boasting no mysterious power or process, it rather takes delight in clothing things familiar and palpable with "golden exhalations of the dawn." An over-critical fondness for the manner of the poet's speech may interfere with the vigor of it. The gift will not stand a too artificial treatment. A native plant taken from the hillside to the garden, notwithstanding the greatest care—as those who have tried it can tell—is apt to become enfeebled. Culture in this way becomes sometimes a very questionable benefit to the poet. To the man of talent, and especially to the critic, it is of the last importance, but it is quite possible for the poet to wear his culture in such a way as to impede and enfeeble him that wears it. The educated and literary poet—except when endowed with the very highest power—can never sufficiently forget and shake himself free of the critical element, and seldom attains that perfect, because unconscious, *ars celare artem*, which characterizes the more robust and less elaborated gift. It may occur to many that the poetry of Mr. Browning may serve as an illustration here. But his case is not so much to the point as many others. His is rather a unique example. In him it is difficult to draw the line between information and inspiration; one cannot well conceive of them apart. Take away his culture, or even reduce it to mediocrity, and you withdraw his essential element, and, in fact, put his

genius in a receiver and pump the air away. Without elaborate and excessive culture the lever of Mr. Browning's genius would have found no fulcrum, and we question much if in a less cultured age he would have had temptation enough to have become a poet at all.

There are many and much more fitting illustrations than his case affords. The very highest genius is not altogether untouched by it. Who would not even gladly accept a less completely informed Milton, instead of the one we have, bristling all over with a quickset of mythological briers, which ninety-nine out of a hundred of his admirers prefer leaping over to walking through, and which they do leap over? Cowley again, "the poet of the brain" as M. Taine so justly calls him, affords a less important, but yet a more striking case; in fact, he is one of the best examples we have of the purely literary poet. If we could take from his poetry those ingenious absurdities, and affected prettinesses, with which a lettered overniceness so plentifully strewed it; or if we could only have kept his poetry as sweetly simple as his prose, how much more readable it would have been. The genius of Burns itself—and Nature never sent anything out of her heart with a clearer directness than *that*—is not altogether untainted in this respect. If ever there was a poet born on purpose to illustrate the difference between the poetry of genius and the poetry of talent, between the poetry of impulse and the poetry of effort, between the poetry of inspiration and the poetry of gestation; in short, between the intrinsic and the extrinsic gift—surely that poet was Burns. One can hardly open his works at random without finding some proof of what we say. His worship of the true fire, and his almost godlike revelry in the use of it, may be inversely estimated by his corresponding contempt of the borrowed light. His perception of the infinite value of the one, and the pretentious hollowness of the other, were equally clear and strong; and in making allusion to their respective claims, he was not in the habit of mincing matters.

What's a' your jargon o' your schools,
Your Latin names for horns and stools
If honest Nature made you fools,
What sairs your grammars?

Ye'd better ta'en up spades and shoals
Or knappin-hammers.

A set o' dull conceited hashies
Confuse their brains in college classes !
They gang in stirks, and come out asses,
Plain truth to speak.
And soon they think to climb Parnassus
By dint o' Greek.

Gie me ae spark o' Nature's fire !
That's a' the learning I desire.
Then though I trudge through dub and mire,
At plough or cart,
My muse, though hamely in attire,
May touch the heart.

And yet—not to detract one moment from the infinite credit he had in the little culture he so manfully strove to give himself—who can read his letters without perceiving that even that little made him not a little pedantic sometimes ? And in his poems, too, we have now and then a phrase such as “the tenebrific scene,” and a few others of that description, not many, but yet just enough to make every lover of true poetry inwardly thank God that the poet's culture went no further in that direction, and that he escaped the vice of “fine writing” by a happy ignorance of it. Again, in Goethe it may be questioned whether the philosopher and man of science did not sometimes super-saturate the poet. Even in Shakspeare himself we are perhaps more indebted to his “little Latin and less Greek” than we commonly suppose. Better for us it may be, after all, that like his own Holofernes, and Nathaniel in *Love's Labour's Lost*, he did not manage to steal from the great feast of languages any more than the scraps. Had he been more perfectly equipped, we might have had more of his learning and less of his genius : the one we could have had as well from any one else ; the other, from no one else.

Now, if the poet born runs this risk, and even suffers by it, to some degree, notwithstanding the continually counter-acting influence of his genius, we need not perhaps be so surprised to find that the smaller talent of the poet made is sometimes overpowered by it, or that in a highly-educated age the artificial modifications of the poetic faculty should be so common.

By far the most admissible ground lying between the poet born and the poet made is unquestionably occupied by the

purely critical and reflective writer of verse. Most admissible because he cultivates that little isthmus which may be said to stretch between the two, but which properly belongs to neither. What he produces is not so much poetry as a kind of sublimated prose ; just such thoughts as may occur to any educated person, carefully chiselled into rhythmical form. The words of such writers are not winged, but are rather arrows skilfully feathered. Their productions have none of the marks of an overmastering inspiration. They possess their genius, but are never possessed by it : poets *minus* the passion, and consequently have none of the creative fire and lofty utterance that passion alone can give. We suspect that the most successful cultivators of this isthmus know better than to lay any claim to being the real inheritors of Apollo's laurel bough ; and yet this half-way house between Poetry and Prose is often frequented by the highest genius. Coleridge, with a humility that should not be without its lesson—we had almost said its rebuke—for a good many versifiers of the present day, designated some of his poems “rhymed prose.” But that intermediate retreat had far more frequent visitors than he. Wordsworth may be said to have rented permanent apartments there, for keeping out of sight in the mean time his unsurpassed and unsurpassable inspirations, he certainly wrote more rhymed prose than any other possessor of the real gift that ever lived. In fact, it is mainly to the influence of Wordsworth's rhymed prose that we owe the existence of this half-way school ; and although it has a numerous and influential following, and numbers among its productions nearly all that such writers as Clough have produced, we are by no means clear that that influence has been an unmixed good. There is reason to suspect that a good deal of a kind of verse the world might have done very well without has been contributed by that modern modification of the faculty—so wonderfully prolific since Wordsworth's day—which fails to recognize with sufficient discrimination the line between rhymed prose and poetry. In an eloquent passage in the *Excursion* the author deplores the loss of those poets who, as he says, “go to the grave unthought of”—

men endowed with highest gifts,
The vision and the faculty divine,
Yet wanting the accomplishment of verse.

Our misfortune is just the opposite of all this. In too many cases we have the "verse" without the vision.

In attempting to trace the historical fluctuations and modifications of poetry one cannot but remark the continual tendency of the art to fall into artificial and conventional forms; a proneness to drift into positive schools with accepted models, and fixed and final laws, and which an extreme culture is apt to regard with something like superstition. It would seem that in the history of art, as well as in politics or theology, there exists a periodical necessity for revolution. Around it, as around these, gathers a tangle of tradition that now and then must be kicked off in the interests of further progress. Art has been as stubborn a conservator of this sort of *impedimenta* as theology; and just as the Church, as some suppose, has suffered the letter to overgrow the spirit, and now totters beneath a burden of exanimate dogma, which it ought to have allowed to fall in its proper time, like dead leaves that had already served their purpose—in like manner art has frequently been found in an almost breathless condition from the sheer weight of its traditionary harness. In its history we can trace where this hardening process begins, and follow its gradually increasing pressure until the chain begins to gall, and the soul of art begins to sicken under its ever-accumulating burden. Then enters the reformer—some Cromwell of art—who, by the inherent unfetterability of genius, snaps the chain in two and orders the bauble away.

Never was there a greater innovator, or one who shocked the art proprieties with greater effect than Shakspeare himself; and, dating from his time, it is interesting to watch this ebb and flow, or rather this alternate heating and cooling process in the history of the poetic faculty, the oscillation between the claims of the natural poet and the literary and partially made one. Poetry in the Elizabethan era was poured out molten and alive, so much so, that some of its creations—built out of airy nothing—are yet to us more real than the realities of that time. It was not to be expected

that the poetical thermometer could have remained long at that height, so we find that it gradually cooled down and hardened, until Dryden and the Restoration group brought back in some measure its wonted fire and vigor; yet only to fall back again and freeze more completely than ever into the cold monotony and prim formality of the poets of Queen Anne. Again the blood began to warm in the veins of Gray, and Cowper, and Campbell, till at last it reached its modern climax in the glowing passion—not altogether free from fever—of Lord Byron. The tide turned again, and retreated according to its law, till it reached the cultured serenity of Windermere, the placid and almost oriental quietism of Wordsworth. And through his influence we arrive at our own time, with all its advantages and disadvantages, waiting for the next deliverer, as some would almost imply, who do not hide their impatience and restlessness under the artificialities of modern culture. Nor, notwithstanding all the unquestionably high poetry our time has yielded, is their impatience altogether without reason. Unreasonable it might appear, if applied to particular cases, but any one paying attention to the general tenor and teaching of much of the poetical criticism now obtaining, must have observed how frequently it is hinted—and more than hinted—that if we are to pass for judges at all, we must give our hearty approval in many instances to poetry that has little else to recommend it than a certain technical finish, and musical completeness, and that even for the sake of these artistic advantages, we must be prepared to overlook other qualities that are clearly and unquestionably objectionable. Such critics may carry a few readers with them; but it is too far on in our day to expect of the majority of men that they dance to the piping of an educated satyr, even if his exquisite music should compel them to admit that he has found the reed of Pan himself. We make no reference to the metrical attitudinizing of the school which mistakes a cultured eccentricity for genius, and which seems to think it a duty to train Pegasus, as if he were a circus hack, to do nothing but tricks. Such extravagances may be safely left to cure themselves. But leaving these out of sight, men have a right to express their

disappointment, when they believe they have amongst them possessors of the real gift, who have allowed the subject to decline in their hands until it has become little better than a lay figure, upon which they are contented to display the mere millinery of poetical thought: inheritors of a real inspiration, misled by the affectation of the hour, allowing themselves to be tempted into the tricks of the literary *costumier*, who clothes his muse with "samite" and puts a "cithern" in her hand, and instructs her in all the mannered mimicry of an obsolete English. There is no doubt a sweet and dainty delight in much of this poetry. In many instances it is a real gift exercised only in a wrong direction. There is a quaint prettiness about it that reminds one of an old enamel, an antique Watteau-like artificial simplicity, that has its peculiar charm. It is clearly a step in advance of the Damons and Delias, the Chloes and Phillises, the imitation shepherds and shepherdesses, and all the book-rural mockeries of nature and human nature, that so daintily disfigured what is commonly called the classical period of English literature. It is the same in kind, however; the same misdirection of the same faculty, developed under slightly modified conditions. Better bred if you choose, and more elaborately cultured, but nearly identical. Time has changed the actors and the *mise en scène*, but the thing produced is just a revival of the old farce. Such poetry will always have its admirers of a kind, just as there are still readers living who can convince themselves they find nature and reality in the Pastorals of Pope, or the amatory ditties of Shenstone and others of his time. We do not at all quarrel with the fact; only let no critic attempt to foist upon us such things, as if they belonged to the order of that poetry which holds the mirror up to nature, when they do not even hold it up to art in any dignified sense so much as to artifice.

The "classic period of English literature," how easy to expand the title—and the fatal sarcasm that time will clothe it in—to a whole chapter on the influence of supposed culture on the poetic faculty. Showing, as it might be made to show, the easiness of writing the most polished verse and the difficulty of writing even the roughest of true poetry.

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How easy to illustrate from much of the verse called classic that inveterate tendency of art to run into mere drapery, to the almost burial and oblivion of the thing draped. And in our time the danger is imminent. In our anxiety "to paint the outward wall so costly gay," the soul of the thing itself seems to be escaping us. With all deference to one or two great poetical names amongst us, we cannot help thinking that seldom has a time stood more in need than the present of the advent of a soul great enough to be simple, and bringing with it the sacred fire that burns convention to a cinder.

It is not to be disguised that many readers of present-day poetry would gladly hail a reversion in favor of

The few strong instincts, and the few plain rules,

that Wordsworth spoke of. They complain, and not altogether without reason, that too much of what is offered for their delectation wants the freshness and fragrance of Nature, nor are they content, just yet, to accept, in the place of Nature's growths, the most carefully cultivated of exotics. Perfect of its kind as much of our later poetry may be, its perfection is too studied and finically correct to give general or abiding satisfaction, and carries too plainly upon it the marks of the supersubtle manipulation of the modern *littérateur*. These trim gardens of thought are pleasant enough in their way, but in every healthy estimation they will never be preferred—nay, nor compared—to those unbroken acres of wilderness and wild flowers where the indigenous forces of Nature are at work, and God only is the gardener.

The almost universal cultivation of music, and the rapidly increasing appreciation of the highest kinds of it, are certainly features upon which the age may be fairly congratulated, and it is not to be supposed that such a wonderful development of the art could possibly fail to make its mark upon contemporary poetry. When the poetry of the Victorian era has receded far enough in time to admit of a final and unbiassed summing-up, we make no question but that one of its most conspicuous excellencies will be found to be its musicalness. The exquisite melody alone of Mr. Ten-

nyson is more than sufficient to consecrate a muse far less profound than his. Beyond doubt the most perfect passages in poetry have always been the most musical, but to say that on that account they can dispense with meaning, or even consider it a thing of minor importance, would be ridiculous. On the contrary, one has only to take to pieces any of those exquisite passages which, by reason of their perfection, have become permanently embedded and interwoven with the very texture of our language, "those jewels five-words long," as Mr. Tennyson calls them—

That on the stretched forefinger of all time
Sparkle for ever—

in order to come to a very different conclusion. Take any such passage and examine it minutely, and you will find that its perfection consists of a subtle interfusion of sound and sense, and a perfect equipoise of meaning and melody, that sacrifices not so much as a hair on either side.

One cannot but regard the culture of sound for poetical purposes—and, as far as that goes, for prose as well—as of the highest consequence. To a certain extent we are all victims, consciously or unconsciously, of the Mesopotamian fallacy, whether we care to admit it or not. That mere noise, mere color, mere form, mere motion, altogether apart from any intellectual association or moral insignificance, do of themselves affect us, is not to be denied, and therefore need not be laughed at. And that euphonious sound gives wings to thought as nothing else does, whether we can explain it or not, is a simple fact that transcends the region of argument. It has the power even of endowing very commonplace thought with a kind of fictitious immortality. In all languages some of the weakest and most childish of proverbs have held their place for ages by reason only of the musical mould in which they have been cast. Many of them owe their continued existence to a mere trick of sound, some catching rhyme, or euphonious alliteration, some silvery see-saw of sibilants, or, perhaps most of all, to a dexterously balanced distribution and modulation of vowel sounds. In the world of art the end justifies everything, and any limita-

tion as to means is not for a moment to be considered. We do not trouble ourselves to inquire too minutely whether or not Turner produced those wonderful effects of surging sea by a twirl of his thumb-nail. For us it is sufficient that the effect is there. The water is alive, and Genius is justified of her children. No exercise of faculty can be too mean or too minute as long as it is controlled by the inspiration, and is not permitted to sink into the region of mere mechanism.

The art of good writing, either in prose or poetry, was defined by Shenstone as consisting of "spontaneous thought and labored expression," and the definition has a certain scope that gives it a fitness for all the other arts. Elaboration can hardly be overdone as long as the thought which sustains and directs it is the *vrai feu*, and not the *ignis fatuus* of a mistaken ambition. The capacity, in fact, for minute refinement in detail, and infinite loving labor, is an instinct of all truly artistic genius. But it should not be forgotten that art in these matters of detail, except in the most competent hands, is apt to degenerate into artifice, until the means and expedients called in for the purpose of enforcing thought are found only to hamper and enfeeble it. To attempt the finish of Rembrandt one must have his insight as well. In such a case music degenerates into mere "*Musikmacherei*," and poetry becomes the mechanical trick of the rhyming "*Wortmacher*," the work not of the artist, but rather of the weak artificer, whose pottering demon tempts him on to

Add and alter many times
Till all is ripe and rotten.

Given the strong poetical thought, and we question much whether or not it is possible to give it an embodiment that shall be too musical; but when critics can show such fondness for the vehicle of poetical thought rather than the thing itself, as shall lead them to avow that if language be only musical enough it does not matter if it mean nothing, it is surely time to enter a protest, if poetry has not to sink into an empty jingle, and become to us the trick of one that hath a pleasant voice, and can play well on an instrument.

The abuse of the music-worshippers

in poetry is capable of illustration from an exactly diverse quarter. Wagner and his school are endeavoring to enforce a theory, which, as it seems to us, is rooted in an error on the exactly opposite side. By an attempt to get out of music an amount of dramatic meaning, which from the very nature of music, and the character of its art implements, it cannot be made to render up, they are making the same mistake—on the other side—with those who attempt to load poetry with more music than the nature of articulate language will artistically admit of. To claim anything like originality for Wagner's theory is almost puerile. It is as old as the phenomenon of sound, or the sense of hearing; a thesis universally received, only pushed to an unreasonable and untenable extreme. No one ever doubted that music and poetry possessed much in common, and must of necessity play into each other's hands. Nevertheless, the products of each art must stand or fall alone. Beethoven's music to *Egmont*, or Mendelssohn's to *A Midsummer Night's Dream*, or Schumann's to *Manfred*, have distinctive merits of their own, altogether independent of the names Goethe, or Shakespeare, or Byron.

No doubt the association and conjunction of exquisite words with exquisite music is an encounter worthy of the gods themselves, and in every case to be desired. And unfortunately it is not to be denied that only too many of our *libretti*, even to this day, go to prove the justice of Beaumarchais' sarcasm in the *Barber of Seville*, "Ce qui ne vaut pas la peine d'être dit, on le chante." But had these *libretti* been perfect, would the music have been other than it is? No; genius by itself must justify itself, or nothing. No possible poverty of sound-accompaniment could ever successfully veil the grandeur of Shakespeare's genius, just as no conceivable triviality of word-accompaniment could alter by a cubit the stature of Beethoven's soul. Bad music just remains bad music, and the bray of the beast is not to be concealed, clothe

it as you will in the bravest lion's skin of words. On the other hand, the exploded divinities of poetry—your Beatitudes, Klopstocks, Blackmores, *et hoc*, would in all likelihood continue to hug the ground if their words were yoked to the song of the morning stars.

The two arts are not only to be much better judged apart, but they can be drawn so near as to destroy and neutralise the special perfection that distinctively belongs to each. They must not move on the same line, but rather glide forward on imperceptible parallels, that, by the nature of the case, can never touch. To take an illustration from music itself; it is not the similarity but the difference between a note and its minor third that makes their harmony so sweetly plaintive and pathetic. You have only to draw them closer together by a very few vibrations in order to set your teeth on edge. And so

If music and sweet poetry agree,
As they must needs, the sister and the brother,

let the very fact of their family connection forbid the banns of a closer alliance. Except by a violation of their nature they can never become one flesh, or one art, in the Wagnerian sense. Where such an alliance has been attempted, the offspring has been some beautifully brainless poetry on the one side, and on the other, music, of which a great part, at least, is unintelligible even amongst musical people. Whether the nonsense or the noise of to-day will ever become, in either case, the wisdom or the music of the future, is a question we are quite contented to let the future settle for itself. But unless these good people—so seemingly essential to every age—who display such an indecent haste in the matter of the millennium, are much nearer their final triumph than we have any sober means of computing, we suspect that our grandchildren will probably find with us, that a good deal more than sufficient unto the day are the impossible theories thereof.—*Cornhill Magazine*.

LOST STARS.

THERE are many otherwise well-informed folks who positively believe, when they see a 'shooting star,' that one of the real stars has quitted its place, lost its position, and that the heavenly host is left smaller by one than it was before. Of course it is no such thing, the so-called shooting-stars, or meteors, being comparatively mere sparks of matter close to the earth, sometimes flying through its very atmosphere in thousands, and having nothing whatever to do with the stellar orbs, calm in the isolated grandeur of their almost infinite distance from our earth, and moon, and sun, and all the planetary system together.

Similarly placed again in principle, though differently in degree of error, are others who, looking through powerful telescopes to sharpen their gaze, and profiting by the accumulated results of action through many hours, or even days, declare that they have thereby found a 'moving star;' that is, a star with a real motion of its own, independent of the apparent motions given to all the stars by the rotation of the earth on its axis and its revolution round the sun. Such conclusion, the telescopic aid notwithstanding, is still an utter error; for though the object may be ever so star-like, even under high magnifying power, the observed motion, when sensible in the course of a few hours or days, shews that it must appertain to something far nearer to us than any of the stars; and further observations invariably end in shewing the wanderer to be a planet, or planetoid (a little planet), or perhaps the nucleus of a tailless comet of our own solar family; all of them belonging to the same domestic system; within our home-circle as it were, in comparison with the almost immeasurable distance of the stars proper.

Before then any one raises the cry that a star has been *lost*, let him be sure that it was a star which he saw, before it was lost; and this simple rule of genuine, undeniable common-sense will be found in its application to produce a wonderful clearing off amongst the largest number of such reputed cases.

But how is one to judge if an apparent star is a real star? Something in this way: you may be sure that a stellar-looking object is a star if it is at the distance of the stars; for nothing else than a star, or distant sun, can be seen at such an enormous interval of space; and that any object is at such a distance, is testified by its preserving a fixity in its apparent position among the other stars, day after day and month after month. Not an absolute fixity indeed, but something so microscopically near it, that the true stars are well, as a first approximation, called 'fixed stars;' for so they remain apparently in spite of tremendous natural agencies always at work, and which would find out any deception immediately. Thus the annual motion of our earth round the sun gives us, at six months' intervals, two observing points a hundred and eighty-four millions of miles apart; and an object must be removed far indeed if its apparent direction is not sensibly changed by being viewed from either end of such a base-line as that! And yet the directions of the true stars are not sensibly altered by it. Of a few of them indeed, the nearest of them, astronomers may make out an infinitesimally small change of place from that cause, amounting to about a fine hair-breadth in a large telescope; but with all the greater multitude of the heavenly host, the change is entirely and absolutely inappreciable to man.

Again, our sun is in motion through space carrying all the planets with him at the rate of about a hundred and seventy millions of miles a year; and yet beyond a hair-breadth effect on a very few of them, all the other stars are seen year after year in exactly the same directions. And still again some of the stars have been proved by the new spectrum analysis to be advancing towards or receding from the earth at the rate of ten, twenty, or thirty miles per second of time; and if the object was at any moderate distance, would not such a rate of motion as that very soon alter its apparent brightness or size to us? Most certainly it would; but yet the whole dis-

tances of the stars from our sun are such, that though the motion at that number of miles per every second of time has been going on more or less, ever since the earliest epochs of astronomical observation, no appreciable effect from that cause on the brightness to us of any of the stars concerned, has yet been made out.

Such then is the overwhelming distance of our sun from any star, and generally of any true star from every other true star. Each of them so distant from its nearest neighbor as to appear from thence an almost vanishing speck of light, and yet existing in majestic grandeur and brilliancy surpassing imagination in its own locality; one of them, Sirius, having been proved to give out as much light as sixty-three of our suns; and we know what Sol can do at our terrestrial distance of ninety-two millions of miles. Some too, if not all of the stars are further accompanied by their own systems of planets, many of them far larger than our earth; and if we may judge by what is burning, or rather rendered incandescent in the photospheres of their suns, furnished with untold wealth of gold, silver, iron, calcium, magnesium, and almost every other known metal. One of these mighty though distant orbs then is a true star, and no one can be found fault with for calling it a star; but has such a stupendous amount of mass, matter, light, energy, and glory ever been really lost; and does its former place consequently know it now no more?

'Yes,' answers with the utmost confidence a young scientist of the day; 'often, often! Many of them have been lost, and are lost to this very hour.'

Here is rather a startling assertion to be met with. But on proof being quietly asked for, it is stated by the asserter and his friends that divers and sundry stars observed by former astronomers, and entered by them very accurately in their long since published *Catalogues of Stars*, are no longer to be found in the heavens; for when the places assigned in such a Catalogue are now recovered by instrumental measurement, they are found to be absolutely and perfectly vacant.

This last part of the tale is true enough; but what is the testimony that

the Catalogue places ever were occupied? Never is it a case of a star so large and bright and permanent in our heavens as to have been seen generation after generation by lord and peasant alike; seldom a case where even two or three telescopic observers agree to having noted its actual and separate existence among the crowds of similar small stars amenable only to telescopic vision; but in place of such witness there is merely a simple *numerical* entry of the measured place of an alleged small star in the Catalogue, containing the similar places of several thousand stars, by some astronomer of repute in his own day, but now no more. To what extent then are we to rely upon that?

Even granting that such astronomer has not—though most of them have, when observing in a wholesale, manufacturing sort of way large numbers of small telescopic stars—catalogued inadvertently as a star some faint planet, or planetoid then unknown (such as either Uranus or Neptune, or some one or other of the hundred and sixty-seven planetoids between the orbits of Mars and Jupiter, now known to be circling for ever through the heavens, and any one of whose then places is of course vacant now); have his observations been always computed correctly to obtain their final results, and have these been printed also without typographical error?

When Sir William Herschel in the last century examined the heavens, with the celestial atlas and stellar Catalogue of Flamsteed, the first British Astronomer-royal, in his hand, he found so many of the stars marked there to be missing in the sky, that a laborious reference was made to the manuscripts of Flamsteed's original observations; and no fewer than a hundred and eleven cases were thereby discovered of imaginary stars, caused by errors of transcribing, calculating, or printing; while from five hundred to six hundred real stars accurately observed, had been omitted! Flamsteed himself, we should say in justice to him, did not live to calculate and print his own observations; but other astronomers, and careful literary compilers, and even societies of the best scientific men of the day, can seldom produce anything extensive without error somewhere or other. Hence, when the late Captain W. S. Jacob of the

Madras Observatory sent a paper to the Royal Society of Edinburgh in 1854 describing his examination of one thousand four hundred and forty star-places selected from the supposed accurate Catalogue of the British Association for the Advancement of Science, published only fifteen years before, he shewed that he had discovered discrepancies between the position of many of the catalogued stars and their exact positions in the heavens; and that there were no less than forty-three of the objects numbered in the Catalogue of which he could find no trace whatever, even in the clear and transparent air of India.

Were those then really lost stars? The newspaper reporters present at the meeting seemed to think so; and their abstracts next morning evidently spread the idea. And the author of this paper was asked by some—in furtherance of prophetic studies concerning the last days—whether it was really true that forty-three stars had actually disappeared from the firmament of heaven in the course of the last fifteen years only!

'I did not say *stars*,' replied Captain Jacob; 'I took very good care to say *numbers*; such and such numbers in the list of the British Association's Catalogue. Those numbers ought, no doubt, each of them to represent or designate a star; but there is no positive security that they do, gathered as they have been from all sorts of sources, until they have been examined, re-examined, and certified by subsequent and most thoroughly independent observers: and if the British Association for the Advancement of Science desires to maintain its ancient unexceptionable fame, rather than its present specious popularity, the sooner it curtails its dinners, and spends the proceeds on preparing a new edition of its Catalogue of Stars, the better.'

Well! but for all that, urges one of the new school, there *are* cases of real stars certainly known to have existed once, and as certainly known not to be visible now, such as the following example, extracted from Arago's *Astronomy*: 'The fifty-fifth star of Hercules, placed in the neck of the figure, has been inserted in the Catalogue of Flamsteed as a star of the fifth magnitude. On the 10th of October 1781, Sir William Herschel saw

it distinctly, and noted that it was red. On the 11th of April 1782, he perceived it again, and inscribed it in his journal as an ordinary star. On the 24th of March 1791, there no longer remained any trace of it. Repeated attempts on the 25th and on subsequent occasions led to no other result. Thus the fifty-fifth of Hercules has disappeared.' All this account may be accepted freely as describing correctly what was seen at the dates of observation concerned; and as there are probably not a few more so-called lost stars, yet no more necessarily or actually lost than this one, let us explain what its position is now generally considered to be.

Fitful changes of color and specially red scintillations have been long remarked as highly characteristic of an extensive and well-known class of stars termed 'variable stars,' or stars variable in their brightness and consequent visibility through periods of time, extending in the different cases from a few days to many years, and occasionally it is believed to several centuries. Thus the star termed by astronomers Algol or β Persei, varies in brightness from the second to the fourth magnitude, and back again, in the short period of two days twenty hours and forty-eight minutes. β Lyrae varies from the third to the fifth magnitude and comes back to the third again in six days nine hours. Omicron, or Mira Ceti, varies from the second magnitude to complete invisibility and reappears and comes up to the second magnitude again in three hundred and thirty-four days. η Argus varies from one of the very brightest of the stars of the first magnitude in the whole heavens down to a most inconsiderable one of the fourth magnitude, and blazes out again up to the first magnitude in about forty-six years; while R Cephei varies from the fifth magnitude down to the eleventh magnitude, or visible only in a very powerful telescope, and returns to the fifth (which is visible to the naked eye) in about seventy-three years.

Now these stars, no matter how much they may vary in brightness, are no more lost and perished in space when they fade away and disappear to us, than our sun is when hid from our view at night by the intercepting body of the earth. Neither are they moved out of their

fixity of place, nor deprived of any of their mass and gravitation governing power over their attendant planets, any more than our sun is, when at times, now known to be periodic and subject to law, his bright surface is dimmed by many dark spots. Hence the simplest supposition to explain the observed phenomena of the star fifty-fifth of Hercules is, that it is one of those 'variable stars.' In which case it still undoubtedly exists in its own place, and will again appear to view there at some future time.

But mere telescopic details can affect only the few; while the general public is rather thirsting for a case of some good big star, which all can see. 'Was there not such a star,' they ask, 'brighter than any of the orbs we have before us now, to be seen once in the constellation of *Cassiopeia*; and did it not burn and blaze through several years in varied colors, just like a world on fire, and then disappear and leave its place absolutely vacant?' Such a star was certainly seen by all the northern world in 1572, 1573, and 1574, but, not previously to that; until, at least, you ascend the stream of time to 1264, when a temporary apparition of the same sort appeared in the same part of the sky; and again the same thing is reported in history to have occurred about the year 945 A.D. So that here again we have merely an extreme case of a 'variable' star, with an intense though short-lived *maximum* of light and a long-continued *minimum*. But so far from being now—because its *minimum* is below human visibility—a lost, lapsed, or destroyed star, it may be, and probably is, going on in its own place according to laws which it has followed in the

past, and will continue to follow for countless millions of years, without a moment's cessation at any time. And in fact the sequence of the numbers 945, 1264, 1572 lead astronomers to expect its reappearance at some time previous to 1890. And if it does shine forth again at that time, and prove itself in the scientific age of the world to be 'a variable' with a period of more than three hundred years, it will not only get the physical nature of its light well examined by spectroscopic analysis, but will strengthen that 'variable-star explanation' for the benefit of many other temporary stars with still longer periods of time; and longer, we say advisedly, because only *one* of *their* maxima of brightness is known to have been witnessed yet through all the human period.

Such were the intensely bright star in *Serpentarius* in 1604 A.D.; the bright star in *Scorpio* in 900 A.D.; another in *Aquila* in 388 A.D.; and another still in 130 A.D., not to say anything of the still more celebrated and classic case of the 'Lost Pleiad,' which the poets affirmed to have disappeared in grief after the siege and taking of Troy about 1200 B.C., leaving thereby the primeval group of 'the seven stars' to be six only, ever since; but with the asserted destiny of the seventh one shining forth at some future time brighter than ever. A sort of early poetical prophecy, which the recent progress of practical astronomy on one side and archæological research on the other, especially at the Great Pyramid, have been lending remarkable confirmation to within the last very few years.—*Chambers's Journal*.

GERMAN STUDENT'S CHANT.

"GAUDEAMUS IGITUR."

COME, be gay, while yet we may,
Darker days betide us;
Youth goes by with joy and gladness,
Age comes on with care and sadness,
Then the earth will hide us.

Where are they who ere our day
Revelled happy-hearted?
Some to realms of light supernal,
Some to Stygian shades infernal,—
All are now departed.

Life as brief as fading leaf,
 Fast away is faring:
 Death comes rapid, rushing on us,
 Lays his icy hand upon us,
 No one mortal sparing.

Temple Bar.

WILLIAM DEAN HOWELLS.

BY THE EDITOR.

THE portrait in our present number is of Mr. W. D. Howells, who, as poet, novelist, and essayist, has won for himself a foremost place among what may be called the younger generation of American authors. The popularity of his own writings, together with his position as editor of the *Atlantic Monthly*, has enabled him to exercise a decided influence upon current literature; and he is perhaps the leading exponent of a school whose principal characteristic is a refinement of method and a finish of style surpassing anything hitherto known in our national literature.

WILLIAM DEAN HOWELLS was born in Martinsville, Belmont County, Ohio, on the 1st of March, 1837. When he was three years old, his parents removed to Hamilton, Ohio, and there, in the office of his father, who was a printer and publisher, he learned the printer's trade, and worked at it for twelve years. At the end of this period he became assistant editor of the *Ohio State Journal*, and subsequently was connected with the *Cincinnati Gazette*, contributing during the time six poems to the *Atlantic Monthly*. In 1860 he published a life of Abraham Lincoln, and wrote, in conjunction with John James Piatt, a volume of verse entitled "Poems of Two Friends." In 1861 he was appointed

by President Lincoln United States consul at Venice, where he remained until 1865, making researches and observations which subsequently bore fruit in the two delightful volumes of sketches entitled "Venetian Life" (1866) and "Italian Journeys" (1867). On his return home, in 1865, he joined the staff of the *Nation*, and shortly afterwards became assistant editor of the *Atlantic Monthly*, then under the management of Mr. James T. Fields. In July, 1871, the magazine passed into his sole control as editor, and he has held the position until the present time, though in the interval the magazine has changed publishers.

Besides those already mentioned, Mr. Howells's published works are: "No Love Lost," a poem (1868); "Suburban Sketches" (1869); "Their Wedding Journey" (1872); "A Chance Acquaintance" (1873); "A Foregone Conclusion" (1874); "Private Theatricals" (1875); and a "Life of Gov. Rutherford B. Hayes" (1876).

His editorial contributions to the *Atlantic Monthly* are numerous and varied, and he has also written copiously for the *North American Review*, *Putnam's Magazine*, the *Saturday Press*, and other periodicals.

LITERARY NOTICES.

THE LIFE OF MARIE ANTOINETTE, Queen of France. By Prof. Charles Duke Yonge. New York: Harper & Bros.

Few stories are more familiar to modern ears than that of Marie Antoinette, and perhaps none is more interesting; but, often and well as it has been told, Professor Yonge makes it plain that the attractions and instruc-

tiveness of the subject are as yet far from being exhausted. In the preface to his work, Professor Yonge enumerates a score or more of authorities that he has consulted in its preparation, but by far the most important of these, and the use of which has given its peculiar value to the biography, are the two collections of correspondence published by M. Arneth and M. Feuillet de Conches at





Engraved for the Eclectic by J. J. Galt, New York.

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Leipsic and Paris, between 1866 and 1875. These two collections fill no less than ten large volumes, and contain "not only a number of letters which passed between Marie Antoinette, her mother the Empress-Queen (Maria Theresa), and her brothers Joseph and Leopold, who successively became emperors after the death of their father; but also a regular series of letters from the Imperial ambassador at Paris, the Count Mercy d'Argenteau, which may almost be said to form a complete history of the Court of France, especially in all the transactions in which Marie Antoinette, whether as dauphiness or queen, was concerned, till the death of Maria Theresa at Christmas, 1780." The correspondence with her two brothers, the emperors Joseph and Leopold, only ceases with the death of the latter in March, 1792; and there are numerous letters exchanged by the queen with various friends, including several of her most intimate associates. Many of the letters, especially those to her mother, reveal the very inmost and most secret recesses of Marie Antoinette's character, motives, and conduct; and, taken as a whole, the correspondence throws a perfect blaze of light upon the history of France during the most striking period in the annals of modern Europe. Not a few great public characters are seriously damaged by the ordeal to which they are thus subjected; but, as Professor Yonge says, "it is but recording the general verdict of all whose judgment is of value to affirm that Marie Antoinette has triumphantly surmounted it, and that the result of a scrutiny as minute and severe as any to which a human being has ever been subjected, has been greatly to raise her reputation."

Making use for the first time of this extremely valuable material, Prof. Yonge's work possesses more of the charm of novelty than could reasonably have been expected in a story so often rehearsed; and though the author is confessedly a eulogist rather than an historian, his life of Marie Antoinette easily surpasses and supersedes any previous achievement in the same field. As a narrative of vitally interesting and important facts, it could hardly be more brilliant and fascinating than it really is, and it only misses being a great work because of the author's lack of sober judgment, and the unreasonable lengths to which he is carried by his partisan prejudices and predilections.

HAROLD. A Drama. By Alfred Tennyson.
Boston: J. R. Osgood & Co.

In his new drama, Mr. Tennyson has put into the compendious form of a five-act tragedy the noble portrait of Harold, "the

last English king of England," which Mr. Freeman draws with such painstaking care in his "History of the Norman Conquest," together with the substance of the picturesque narrative which the same historian gives of the closing years of the Saxon monarchy. Many of the great historical characters of the period are introduced, including William, Count of the Normans, and Edward the Confessor; and the background of incident is so adjusted as to bring into view nearly all those political and religious complications which prepared the way for what Mr. Tennyson regards as the lamentable tragedy of the Conquest. Patriotism is the theme of the drama, and the public rather than the private life of the leading characters is dealt with. The figure of Harold is a very noble one—somewhat cold and austere, but truly heroic in his devotion to his country and to his conception of duty. He secures the respect and sympathy of the reader at every stage of his career, and the catastrophe of Hastings will doubtless henceforth be looked upon with different eyes by those who have drawn their impressions of English history from the popular historians who have been too apt to assume that whatever has happened in England has been for the best.

To this extent—that of rescuing one of the heroes of English history from misconception or oblivion—Mr. Tennyson has been successful; but in other respects "Harold" can hardly be regarded as an advance upon "Queen Mary." It exhibits greater experience in the playwright's art, and is far better adapted for representation on the stage; but it is less poetical, less strong in its appeal to the feelings, less impressive as a psychological study, less varied in the emotions depicted, and decidedly less brilliant and affluent in style. There is nothing in it approaching in power to the last two acts of "Queen Mary;" and careful as the author is to unify and concentrate the interest, the impression left upon the mind is, after all, confused and inchoate in the extreme. "Harold" is by no means a "closet drama," and it is probable that many of its apparent deficiencies would disappear in a stage representation. Still, it cannot be denied that on reading it appears tame, and tamer on a second reading than at the first.

MICHAEL STROGOFF, the Courier of the Czar.
By Jules Verne. Translated by W. H. G. Kingston. Revised by Julius Chambers.
New York: Scribner, Armstrong & Co.

It would perhaps be harsh to say that M. Verne has written himself out, but he is certainly getting careless. "Michael Strogoff" shows no falling off in skilfulness of construc-

tion, fertility of resource, vivacity of style, or that ingenious intermingling of *bona fide* knowledge and geographically accurate description with imaginary persons and adventures which is the characteristic feature of all Verne's works; but it is very much inferior to the best of its predecessors in variety of incident, in rapidity of movement, in picturesqueness, and in the plausibility of the achievements described. Wildly impractical as most of Verne's themes are, they are usually kept carefully within the limits of the logically and scientifically possible; but many of Michael Strogoff's performances partake of the vulgar marvellous, and it is difficult to keep up any real interest in the story to the end. The author has been either too hasty or too careless to hide his mechanism, and the steady turning of the crank becomes after a time somewhat monotonous.

What is good in the book, however, redeems most of its faults, and a little judicious skipping will render it enjoyable reading. The geographical descriptions are always striking, and the numerous pictures make up for any lack of spirit in the text.

COURTSHIP IN 1720 AND IN 1860. Romances of Two Centuries. By Hawley Smart. (The Star Series.) Philadelphia: J. B. Lippincott & Co.

Under the title of "The Star Series," the Messrs. Lippincott have begun the publication of a series of "choice popular works, chiefly fiction, which will be selected with the greatest care, the aim being to produce a series, any volume of which may be purchased with perfect confidence that a readable work is being secured." The initial volume contains two novelettes by Capt. Hawley Smart, and it seems to indicate that if no great severity of taste will be exercised in making the selections for the series, it will at least fulfil the promise of the prospectus in being "readable." The period of the first story is the beginning of the eighteenth century, and the scene is laid in Germany; the story itself being founded on an incident narrated in Carlyle's "Life of Frederick the Great." The second story is intended to depict a characteristic phase of English society in our day, and to illustrate some of the habits of the *jeunesse dorée*. Neither attempts to penetrate very deeply beneath the surface of things, and the book does not pretend either to point a moral or to exercise a mission. The author's purpose is evidently accomplished if he succeeds in amusing the reader, and we may say that the reader will be difficult to please who does not pronounce both stories lively, picturesque, and interesting.

SELECT BRITISH ESSAYISTS. SIR ROGER DE COVERLEY PAPERS FROM THE "SPECTATOR." With an Introductory Essay by John Habberton. New York: G. P. Putnam's Sons.

Since the appearance of the first volume of his "Select British Essayists," Mr. Habberton has attained to something like fame as the author of "Helen's Babies;" and this circumstance will probably tend to secure a wider circulation for his compilations from the old classics. As it is in the interests of good reading, this is matter for congratulation, and we can commend the present volume to all readers of "Helen's Babies" as not less enjoyable and certainly not less instructive than that highly popular work. It contains all the papers relating to Sir Roger De Coverley which were originally published in *The Spectator*; and being complete and unabridged, they convey a far better idea of the peculiar charms of those famous essays than could be obtained from fragmentary selections, however varied.

FOREIGN LITERARY NOTES.

A BIOGRAPHY of Marshal Prim, compiled from the family documents, is preparing at Madrid.

MR. KNOWLES's connection with the *Contemporary Review* has ceased, and he is about to assume the control of a new periodical to be styled *The XIXth Century*.

A NEW *Revue Musicale* is announced to be published at Constantinople, which is to contain especially pieces composed by the amateurs of the Turkish Empire. The work is likely, we should think, to be a musical curiosity.

PROFESSOR VAMBERY has finished, and is about to publish, his "Etymological Dictionary of the Turco-Tatar Languages," forming a *thesaurus* of the Yakut, Korbai-Karagas, Altai Tchuvash, Uigur, Tchagatai, Kezan, Azerbaidjan, Turcoman, and Osmanli languages.

THE publication in Russia of M. Thiers's "History of the Empire" has been prohibited by the Government, although the issue of the "History of the French Revolution and Consulate," by the same author, met with no opposition on the part of the censor.

THE Eleventh of the Parisian Courts of Police Correctionnelle has had a curious case before it. Madame Marie Quivogne, known in literature as Marc de Montifaud, was charged with outraging public morality by her latest novel, and condemned to eight days' imprisonment and a fine of 500f. The printer was condemned to make the same *amende*.

MR. PATERSON, of Edinburgh, will shortly publish a new translation of "Gil Blas," with notes. The notes which are to be appended to the new version will point out the places where Smollett allowed himself either to skip a sentence or to trip in his appreciation of the French original.

M. RENAN is now correcting the proofs of the fifth volume of his *Origines du Christianisme*, which will appear in April next. This volume, which was originally to be the last of the series, only comes down to Trajan, and will be followed by a sixth, which will come down to Marcus Aurelius. M. Renan will probably undertake after its publication a History of the Jewish People.

PROF. FAWCETT is writing a book on Protection and Free Trade. He intends to consider the arguments advanced by the advocates of Protection in America and the Colonies; and he also means to make special inquiry into the causes which have prevented the realization of the predictions of the general adoption of free trade which were so constantly made at the time of the repeal of the Corn Laws, and of the negotiation of the commercial treaty with France.

MR. W. F. MAYERS, British Secretary of Legation at Peking, has completed, and will shortly publish, a Grammar and Vocabulary of the Language of Corea, which will be accompanied with comparative treatises on the Japanese, Manchoo, and Turkish languages, and accompanied with a sketch of Corean history. This will be the first work of the kind published in English. Nothing has been hitherto known of the language, and the only specimen of the literature existing in the West is a volume of a novel, which stands in the library of the British Museum.

SCIENCE AND ART.

EFFECT OF SUNSPOTS ON TERRESTRIAL CLIMATES.—Professor S. P. Langley has endeavored to ascertain by how many points of a degree Centigrade the earth's mean annual temperature necessarily varies between a year of maximum and a year of minimum spot areas, so far as the immediate effect of these on the solar thermal radiations is concerned. To do this, it is necessary, he says, "First to procure from experiment, trustworthy measurements of the relative amounts of photospheric, penumbral, and umbral radiation; secondly, to determine the relative photospheric, penumbral, and umbral surfaces, in a maximum and minimum year, and (having

suitably combined these data) to show, thirdly, within what specific limits we can assert that the terrestrial temperature will necessarily be changed." One rather important point may be added as absolutely essential to the formation of an opinion from direct observation—namely, we must determine whether the radiation from the photosphere remains unchanged, or if not, how it varies, with the changing condition of the sun as regards the spots. It may be that the increased activity certainly prevailing when spots are numerous increases the general radiation from the photosphere, and that, too, in a much greater degree than the sunspot area reduces the extent of photospheric surface. Having unfortunately omitted to make any observations bearing on this point, probably the most important in the whole inquiry, Professor Langley's results are *pro tanto* reduced in value. They are these: that (neglecting the point just mentioned) the least change in solar heat due to sunspots, amounts to one tenth per cent of the whole radiation (whose thermometric effect registered here is a change of at least 70° C.): whence we find $0^{\circ}.063$ C., as the *least* change in terrestrial temperature which we can attribute to the direct action of the spots; and the *greatest* change in terrestrial temperature which can be due to this cause amounts to $0^{\circ}.29$ C. Thus "sunspots" do exercise a direct and real influence on terrestrial climates by decreasing the mean temperature of this planet at their maximum, but the decrease is so minute that it is doubtful whether it has been directly observed or discriminated from other changes.

CARBONIC ACID AND ANIMAL LIFE.—A German chemist has made a long series of careful experiments to ascertain the quantity of carbonic acid given off in respiration and perspiration by different animals. From among his most important conclusions printed in the *Journal of the Chemical Society*, we select a few which appear worth wider notice. In proportion to their weight, the largest quantity of carbonic acid is given off by birds—mammals come next—and worms, amphibia, fishes and snails form another group in which the excretion of carbonic acid is much smaller; of these, worms give off the most, and snails the least. Those that live in water give off more carbonic acid to the air than they do to the water; and young animals more than old ones. Experiments with colored light show that under the green and yellow more carbonic acid is excreted than in ordinary daylight; and on comparing light and darkness, it was found that much less carbonic acid is given off during the night than during the day. In colored light the milk-white and blue

rays come next to the green and yellow in activity; and the red and violet are the least active.

MOBILITY OF THE EARTH'S AXIS.—A paper read before the Royal Society by Mr. G. H. Darwin, son of the eminent philosopher and naturalist, discusses the question of the fixity or mobility of the earth's axis of rotation, and the possibility of variations in the obliquity of the ecliptic—a question which has of late attracted much attention. The sum of the argument is, that if the earth be quite rigid, no redistribution of matter in new continents could ever cause the deviation of the Pole from its primitive position to exceed the limit of about three degrees. But if it be true that the earth readjusts itself periodically to a new form of equilibrium, then there is a possibility of a cumulative effect; and the Pole may have wandered some ten or fifteen degrees from its primitive position, or have made a smaller excursion and returned to near its old place. With regard to the obliquity of the ecliptic, no such cumulation is possible. As Mr. Darwin remarks, even gigantic polar ice-caps during the glacial period could not have altered the position of the Arctic Circle by so much as three inches. Thus the obliquity of the ecliptic has remained sensibly constant throughout geological history.

A REMARKABLE TIN-BEARING DISTRICT.—In the State of Durango, Mexico, about nine thousand feet above the sea, there is a remarkable tin-bearing district more than twenty miles in extent, concerning which a few particulars have been made public. By sinking of shafts it has been ascertained that stream tin and ore abound over the whole district. The ore is found loose in the veins in irregular rounded masses from the size of a pin's head to that of a man's head; and the supply is so great that "metallic tin can be produced at a cost of two cents a pound." There are six hundred veins already known, and more than three hundred drifts of stream tin. A visitor to the spot is of opinion that the tin ore is still forming. A portion of a vein was left standing in 1864. On examining the place in a subsequent visit in 1870, he found that "new films or layers of cassiterite had been deposited, and in some places noticed that peculiar variety known as toad's-eye tin, which he believes had formed during his absence.

SUGAR-MAKING FUNCTION OF THE LIVER.—The anniversary meetings of the Royal Society may be regarded as records of the progress of science, for the president makes known what has been done during the year, and in pre-

senting the medals, sets forth the reasons for the several awards. Thus at the last anniversary, the Copley medal was given to Claude Bernard, a famous French physiologist, for his discovery of the sugar-making function of the liver, which opened entirely new views of the animal economy, and helped to advance the science of physiology. Formerly it was thought that the liver had nothing to do but secrete bile; now we know that chemical actions of different nature are being carried on at the same time with such results as to make of the liver, as has been happily said, "the sweetener of life." The study of these actions ranks among the most interesting of physiological inquiries.

RECENT ARCHÆOLOGICAL DISCOVERIES.—It is not difficult to believe that digging has never been held in such esteem as in the present century, for to say nothing of the tons of gold and silver and of other minerals which have been dug out of the earth within the past fifty years, many chapters of ancient history have been brought to light by digging in various parts of the world, and our knowledge of the arts and architecture of bygone ages has been increased. Nineveh and Babylon have been made to reappear and give up their treasures. Travellers to Jerusalem may now see portions of the city as they stood in the days of David and Solomon: grand historical buildings of the Rome of the emperors have been disinterred; and at Troy, Dr. Schliemann has discovered cities more ancient than the Ilium described by Homer. Since then, while digging at Argos he found the tombs of Agamemnon and other ancient heroes, containing bones, utensils, golden sceptres, and jewelry of matchless workmanship. Discoveries not less important have been made by General di Cesnola in Cyprus: sculptures by thousands in marble and alabaster; numerous gems, ornaments in bronze, terra-cotta; rings and armlets of massive gold; more than two hundred delicately worked articles in silver, at least two thousand years old; and the official seal of Thothmosis III., king of Egypt, who conquered Cyprus in the days when his subjects were building the third and fourth pyramids. This seal is perfect, and is described as "a finely cut stone, pierced and mounted in gold, with its ancient movable handle of silver." Among all these what admirable specimens there will be for modern museums! And more may be expected, for the researches will be continued. In the progress of his work the General has identified the sites of seventeen ancient cities, one of which is Kitium, the Chittim of the Bible. And last we hear of the discovery of ancient towns and golden

ornaments in the wild sandy Desert of Gobi in Eastern Turkestan, an account of which was recently read at a meeting of the Royal Geographical Society.—*Chambers' Journal*.

THE LATE MR. GEORGE SMITH'S LAST DISCOVERIES.—The London correspondent of the *Manchester Guardian* writes:—The main portion of the Babylonian antiquities just received at the British Museum as the result of the last expedition of Mr. George Smith was found near Hillah, a town about three miles north from the site of Babylon. They are chiefly contract tablets, mortgage loans, promissory notes, records of the sale of lands, shares, and other commodities, representing, in fact, all the various commercial transactions of a Babylonian firm, who may be approximately described as Messrs. Gabi & Sons, bankers and financial agents. Many of the tablets represent the renewal of loans and mortgages, so that the documents referring to the first and the last of continuing transactions bear the dates of several different reigns. The dates thus extend from the fall of the Assyrian Empire to the reign of Darius Hystaspes, including dates in the reigns of Nabopolassar, father of Nebuchadnezzar, Evil-Merodach, Cambyses, and the elder and the younger Cyrus. The dates of the tablets, therefore, furnish very important chronological landmarks, and they are in many respects subversive of the recent chronology. The rate of interest current in Babylon on loans was generally 10 per cent, and much light is thrown on the social life of the Babylonians from the circumstance that witnesses of deeds are always described by their trade or profession. One of the tablets is dated in the reign of Belshazzar as king, being the first time his name has been found in connection with the royal dignity, previous inscriptions having had reference to the time when he was described as the son of Nabonidus. There are a large number of mathematical tablets giving calculations of considerable intricacy. One curious and beautiful tablet presents a calendar for the entire Babylonian year—or would, if a fragment had not been lost—and for every day in the year, distinguishing the days as lucky or unlucky, whether for feasting, fasting, marriage, or the building of houses. The calendar further indicates in what respects the several days affect or influence person and property, health and fortune. Among the antiquities are some early Babylonian bricks, and fragments of statuary of a kind hitherto unknown in the city of Zergul, called at this day by the slightly-varied form of Zerghul. There are also specimens of pottery, and two small bronze statuettes of gods, with inscriptions.

The whole series of tablets may be said to be, all things considered, in a fair condition as to their integrity.

RECENT SPECTROSCOPIC RESULTS.—Dr. Huggins has made an important advance by his successful application of photography to the spectra of stars, of which he gives an account in a communication to the Royal Society. Although he has up to the present confined his attention to the bright star Vega, which has a well-marked spectrum, and is therefore specially adapted to the purpose, there can be little question that he will before long obtain good photographs of the spectra of other bright stars, which will add greatly to our knowledge of their constitution by enabling us to examine the invisible part of their spectra in the ultra-violet, besides giving means for more accurate determination of the position of the lines than is ordinarily possible. There is one great advantage which photography has over the human eye—namely, the length of time during which the effect produced by the luminous body accumulates, a circumstance which makes up for the inferior sensitiveness of the photographic film, and it is by taking advantage of this and giving an exposure of several hours that Dr. Huggins has obtained such good results. His photographs of the spectrum of Vega appear to be capable of very accurate measurement, and, independently of their immediate value, which is sufficiently great, will doubtless prove most valuable records of the present physical condition of this star, in case changes of temperature or other causes should in course of time give rise to changes in the breadth of the strong lines in the spectrum, which extend from G to N. In course of time we may hope for most valuable results from the application of photography to variable stars, though, unfortunately, too many of these interesting objects are exceedingly faint.

REMARKABLE STRUCTURE OF YOUNG FISHES.—Dr. Günther, of the British Museum, has recently discovered that the young of the sword-fishes and *Chatodons* are in structure exceedingly different from the adults. In the young *Chatodon* the front of the body is shielded with large bony plates, in one species produced into three long, equidistant horns, which diverge ray-like from the body. In the sword-fishes the scapular arch is prolonged into a horn at the lower part, and the ventral fins are wanting. There is no sword, but the jaws are long, of equal length, and both are furnished with teeth. As the fish grows, the scapular horn disappears, the ventral fins grow, and the upper jaw is developed in excess of the lower. The long teeth dis-

appear, and the upper jaw grows into the toothless, sword-like weapon which gives the fish its peculiar character.

VARIETIES.

EASTERN GIFTS TO EUROPE.—Only the vine, the fig-tree, the laurel of Apollo, and the oleander, have yet been found as fossils in Provence. In all probability the evergreen oak, the myrtle, and the pine, were also indigenous plants. The olive, on the contrary, which was found in the Greek island of Santorin, under a very ancient stratum of lava, first came to Italy by ship with Greek settlers in 600 B.C. The vine which yields the fiery wines of the south came from the southern slopes of the Caucasus by way of Thrace; it was followed by the pheasant from the banks of the Phasis, and by the apricot from Armenia. From Persia came the plane-tree, the peach, the rose, and the lily, while it was at a late period that melons, gourds, and cucumbers, which are all products of the steppes, reached the west, and were brought from Turkestan by the Sclavonians. It was in Phœnicia that the Greeks first saw date palms; as the inseparable companions of the Arabs, these trees appeared in Spain after the conquest, and landed with the Saracen pirates on the shores between Nice and Genoa. From Semitic Asia comes also the cypress, the paradise apple, the caraway, and mustard, while Northern Europe is indebted to Rome for the lime, and to Greece for the pea. From Italian gardeners our ancestors learnt to ennoble the sloe into the damson by grafting Damascene scions; and the agriot from Cerasus on the Black Sea was placed on the wild cherry-tree. The domestic fowl migrated, in the first instance, to Greece from India, and across Persia; while the peacock was brought from Ophir (Abhira at the mouth of the Indus) by the ships despatched to India by Solomon and Hiram. It was thus mainly the eastern countries which poured their riches into the south of Europe, and the New World had comparatively little additional to bestow: a single cereal, maize, a single tuber, the potato, and, as common ornaments of southern landscapes, the aloe and the prickly pear. But it was not only the gifts of Ceres, not only the ornaments of our gardens and groves, and the tempting fruits of our orchards, that migrated from the east to the Mediterranean; for the noblest intellectual riches came by the same road.—*"The Races of Man," from the German of Oscar Peschel.*

TASTE IN THE HOUSE.—It matters little however fady the walls are decorated and the

furniture designed if those who inhabit the house care nothing for beauty. If their eyes and hearts are not instructed to value and enjoy beautiful forms and harmonious colors, they might inhabit a house built by Wren or by Inigo Jones, and they would know no better than to furnish it with the productions of Tottenham Court-road, and fill it with imitation bronzes cast in Birmingham, or pottery taken at random from manufactories where all art traditions have long since been forgotten. It is common enough to hear people say that they "know what they like," and that they wish the decorations and fittings of their houses to represent their own tastes; but to know what to like with understanding is a more difficult matter than is generally supposed, and before we exhibit our tastes we should take care that they are so far cultivated as to make it desirable to display them at all. The culture of æsthetic feelings is too generally neglected amongst us; so that but little is cared about the principles of decorative art. If, therefore, we may take an ordinary London drawing-room as a true index of the mind of its owner, we can only reflect with dismay how little artistic knowledge there is yet to be found in our midst. Even those who find real pleasure in the contemplation of beautiful pictures or marbles, and who travel hundreds of miles to see the treasures of art in other countries, yet seem completely at sea when they have to choose a carpet for their drawing-room, or a side-board for their drawing-room, and they act as if they thought that decorative art must be judged by a totally different standard to that applied to art in any other branch.—*From "Suggestions for House Decorations."*

THE BAZAARS AT STAMBOUL.—Persons from the Frank quarter visiting the vast enclosure devoted to commerce at Stamboul must thread their way along narrow, dirty lanes, and pass through the court of the Mosque of Bayazid, or Bajazet, famed for its monoliths of green stone and jasper. In this court live, and are maintained at the public expense, hundreds of pigeons, said to be descendants of the very bird that by miraculous interposition saved the life of the Prophet of Islam. It is related that when Mohammed fled from Mecca to escape from the fury of the Koreishites, incited by his implacable foe, Abu Sofian, he and his father-in-law, Abu Beker, took shelter in a cave in Mount Thor, about an hour's distance from the city. On hearing the near approach of the pursuers, Abu Beker, in alarm, exclaimed, "They are many, we are but two." The Prophet rejoined, "Nay, there is a third, for God is with

us," and immediately a miracle rewarded his pious faith. By the time the Koreishites reach the cave, an acacia tree had sprung up, a pigeon had built a nest and laid two eggs in it, and a spider had woven its web across the entrance. The pursuers turned away disappointed, and the fugitives were saved. None of the sacred pigeons are ever killed; indeed, a wilful injury to one of them is said to be punished with death. Their number is kept within bounds by frequent gifts of pairs to distant mosques and to privileged individuals. The bazaar comprises miles and miles of narrow lanes intersecting each other. A row of low counters runs along the front of the shops. On these the masters sit cross-legged, or with one foot under them, quietly smoking their pipes, and languidly transacting business with customers, who not unfrequently seat themselves in like manner, while they drive a slow bargain, and murder precious time. People following the same trade occupy the same street. Near the entrance of the bazaar are found the trades of least importance, such as sellers of beads, combs, and spoons. There are whole streets with shops full of the last articles of every material, from wood and bone to silver and gold, adorned with coral and precious stones. Here, too, may be seen the chopsticks, which remind one of the vampire lady in the story, who in her husband's presence ate nothing but rice, which she picked up grain by grain. One can understand how her rose-tipped fingers manipulated the dainty machine for which advanced civilisation, always in a hurry, even in eating, has substituted a many-pronged fork.—*The Argosy*.

CRITICS AND THE CRITICISED.—We know further that the best of critics is the one who makes fewest mistakes. We laugh at the familiar instances of our ancestors' blindness; but we ourselves are surely not infallible. We plume ourselves on detecting the errors of so many able men; but the very boast should make us modest. Will not the twentieth century laugh at the nineteenth? Will not our grandchildren send some of our modern idols to the dustheaps, and drag out works of genius from the neglect in which we so undeservedly left them? No man's fame, it is said, is secure till he has lived through a century. His children are awed by his reputation; his grandchildren are prejudiced by a reaction; only a third generation pronounces with tolerable impartiality on one so far removed from the daily conflict of opinion. In a century or so, we can see what a man has really done. We can measure the force of his blows. We can see, without reference to our

personal likes or dislikes, how far he has moulded the thoughts of his race and become a source of spiritual power. That is a question of facts, as much as any historical question, and criticism which takes it properly into account may claim to be in some sense scientific. To anticipate the verdict of posterity is the great task of the true critic, which is accomplished by about one man in a generation.—*Cornhill Magazine*.

SLAVERY UNDER THE ROMAN EMPIRE.—One inseparable effect of the institution of slavery is the anomalous condition to which the lower orders of freemen, those who would ordinarily constitute the working classes, are necessarily reduced. Their place in the social economy being taken, they themselves sink into a useless and mischievous encumbrance. This was eminently the case in Roman society under the Empire. The number of slaves was prodigious, and their proportion to other wealth very great. Trade, not only wholesale, but retail, was usually carried on by slaves on their masters' account. Doctors, lawyers, bankers, merchant captains, commercial travellers, small shopkeepers, publicans, hawkers, and even slavedealers, were for the most part but slaves, who exercised their several callings on behalf of the speculators who owned them. Some few employments indeed were open to the poorer classes of freemen, such as inferior situations about the temples and in the custom-houses: but even here they were subject to severe competition with slaves. And so degrading had the prevalence of slave labor caused work to be considered, that men, women, and children, rather than embrace the few means of honest livelihood yet left them, rushed eagerly to fill the numberless useless and immoral callings engendered by luxury in a corrupt society. To be a gladiator, a buffoon, a dancer, or a courtesan, was not only more lucrative, but in public estimation more honorable, than to follow any honest trade; and except for occupations like these, the greater part of the Roman plebs lived in idleness on the gratuitous distributions of food made by the State and by rich citizens. Another consequence of excessive cheapness of slave labor was extreme wastefulness in its application. The loss caused by useless labor was little thought of, and the distribution of work was regulated with the utmost caprice. Whilst some slaves might pass their lives in turning a mill, harnessed, and sometimes muzzled like beasts, others in crouching day and night before their looms, the division of labor in the opulent houses was often carried to such an absurd extreme, that

ten men were scarcely sufficient to perform tasks which might have been reasonably expected of a child. Each different kind of dress, each sort of material, had its own custodian. The mirror, the comb, the girdle, had every one its slave; each different sort of headdress its different professor. The art of carving was brought to such elaborate perfection that there were slaves who had no other business. When a rich man went abroad he was attended by a whole army of footmen and pages, in such numbers as to block up the public ways. Each office of the bath, the kitchen, and the house was performed by its own slave. Domestic gladiators, actors, male and female musicians, dancers, tumblers, and jesters were kept to enliven the banquets. There were also the troops of cupbearers, beautiful children with long shining hair, slaves of luxury and shame, who were numbered sometimes by hundreds, and these carried in their train others charged with their training and adornment.—*The Month*.

NERO AND HIS GOLDEN HOUSE.—Nero's life as Emperor was one long series of stage effects, of which the leading feature was a feverish extravagance. His return from the art-tour in Greece outdid all the triumphal processions of the past. Thousands of carriages were needed for his baggage; his sumpter mules were shod with silver; and all the towns he passed upon his way received him through a breach made in their walls, for such he heard was the "sign of honor" with which their citizens were wont to welcome the Olympian victors of old days. The public works which he designed were more to feed his pride than serve the public. He wanted, like another Xerxes, to cut a canal through the Corinthian isthmus; thought of making vast lakes to be supplied from the hot springs of Baia, and schemed great works, by which the sea might be brought almost to the walls of Rome. But it was only by his buildings that he left enduring traces, and to this the great disaster of his times gave an unlooked-for impulse. Some little shops in the low grounds near the Circus took fire by chance. The flames spread fast through the narrow streets and crowded alleys of the quarter, and soon began to climb up the higher ground to the statelier houses of the wealthy. Almost a week the fire was burning, and of the fourteen wards of the city only four escaped unharmed. Nero was at Antium when the startling news arrived, and he reached Rome too late to save his palace. He threw his gardens open to the homeless poor, lowered at once the price of corn, and had booths raised in haste to shelter them.

He did not lack sympathy for the masses of the city, whose tastes he shared and catered for. And yet the story spread that the horrors of the blazing city caught his excited fancy, that he saw in it a scene worthy of an Emperor to act in, and sung the story of the fall of Troy among the crashing ruins and the fury of the flames. Even wilder fancies spread among the people: men whispered that his servants had been seen with lighted torches in their hands as they were hurrying to and fro to spread the fire. For Nero had been heard to wish that the old Rome of crooked streets and crowded lanes might be now swept clean away, that he might rebuild it on a scale of royal grandeur. Certainly he claimed for himself the lion's share of the space that the flames had cleared. The palace to which the Palatine hill had given a name, now took a wider range and spread to the Esquiline, including in its vast circuit long lines of porticoes, lakes, woods, and parks; while the buildings were so lavishly adorned with every art as to deserve the name of the "Golden House," which the people's fancy gave to them. In its vestibule stood the colossal figure of the Emperor, one hundred and twenty feet in height, which afterwards gave its name to the Colosseum. From it stretched porticoes a mile in length, supported on triple ranges of marble pillars, leading to the lake, round which was built a mimic town, opening out into parks stocked with wild animals of every sort. The halls were lined with gold and precious stones; the banquetting-rooms were fitted with revolving roofs of ivory, perforated to scatter flowers and perfumes on the guests, while shifting tables seemed to vanish of themselves, and reappear charged with richest viands. There were baths too to suit all tastes, some supplied from the waters of the sea, and some filled with sulphurous streams that had their sources miles away. Thousands of the choicest works of art of Greece and Asia had been destroyed, but their place was taken by the paintings and the statues brought from every quarter of the empire. Nero sent special agents to ransack the cities for art-treasures, and many a town among the isles of Greece mourned in after days the visit that had despoiled it of some priceless treasure. When all was done, and the Emperor surveyed the work, even he was satisfied, and he cried, "Now at least I feel that I am lodged as a man should be." It was in halls like these that the privileged few gathered round their lord when he returned from the grave business of the circus and the stage to indulge in the pleasures of the table.—*The Earl's Empire*. By W. W. Capes, M.A.



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Reserve for Unpaid Losses and Divi-	
dends.....	243,402 24
Net Surplus.....	1,002,793 90
Total Assets.....	\$6,104,650 82

SUMMARY OF ASSETS.

Cash in Banks	\$342,311 22
Bonds and Mortgages, being first lien on	
Real Estate (worth \$4,294,000)	3,011,453 00
United States Stocks (market value)	2,517,835 00
Bank Stocks " "	286,602 50
State and City Bonds " "	185,433 00
Loans on Stocks, payable on demand (mar-	
ket value of Securities, \$700,379)	519,681 35
Interest due on 1st January, 1877.....	72,997 65
Balance in hands of Agents	153,416 65
Real Estate.....	6,800 19
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issued at this Office.....	8,330 26
Total.....	\$6,104,650 82

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OF

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1877.

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